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NEWSLETTER IN CENTER FOLD

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OFFICE OF TECHNICAL SERVICES

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U. S. DEPARTMENT OF COMMERCE

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BIBLIOGRAPHY OF

Technical Reports

June 1951

TVA ACTIVITIES IN FERTILIZER TECHNOLOGY

The Tennessee Valley Authority operates research and development laboratories and a fertilizer plant at Muscle Shoals, Alabama. The plant consists of several large-scale units for the demonstration of new or improved fertilizer processes and for the production of sufficient quantities of fertilizers for extensive farm tests. Fertilizer and raw material units also are operated near Columbia, Tennessee. These facilities are national fertilizer laboratories and experimental production plants.

The chemical plant, speaking of the facilities as a whole, is unique in many respects. Its laboratories and pilot plants are a center of research in new or improved fertilizers. The production facilities, from mining operations through bagging of the finished products, are operated to prove the value of better fertilizers and processes for making them, primarily from the standpoint of the farmer, the land, and conservation of natural resources. A modern new chemical engineering building for laboratory research, engineering design, and administration was completed in the summer of 1950.

TVA's fertilizer research has centered mainly around phosphate work, although a considerable amount of work has been done on nitrates and some on potash. Methods of washing and classifying phosphate ores have been improved. Electric- and blast-furnace processes for the production of phosphorus and subsequent production of phosphate fertilizers have been developed extensively. Also, a process for phosphate fertilizer production by fusion and defluorination of rock phosphate has been developed. Treatment of rock phosphate with various acids and further processing to make nitrogen-phosphate or nitrogen-phosphate-potash fertilizers has commanded much attention in recent years. The present shortage of sulfur, resulting from unprecedented demand, has magnified the need for solutions to problems of saving this raw material so essential to fertilizer production. A great deal of small-scale research of exploratory and fundamental nature is in progress also.

The results of TVA's work are made public, and the plants are open to representatives of the fertilizer and allied industries who wish to study the developments or who have a special interest in the activities. Hundreds of visitors come to the plant annually to observe the operations and obtain technical information. A large volume of correspondence is carried on with industrial technologists. Articles covering the fertilizer developments have been published in various technical journals.

To make more completely available the great amount of information gathered on each major project, TVA is publishing a series of chemical engineering reports. Five of the series have been published and may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

No. 1. General Outline of Chemical Engineering Activities.

No. 2. Development of Processes and Equipment for Production of Phosphoric Acid.

No. 4. Agglomeration of Phosphate Fines for Furnace Use.

No. 5. Development of Processes for Production of Concentrated Superphosphate.

No. 8. Phosphorus: Properties of the Element and Some of Its Compounds.

The first report contains lists of articles and patents covering work of the TVA Division of Chemical Engineering. Other reports now in various stages of preparation cover corrosion data on metals and ceramics, electric-furnace production of phosphorus, and the development of processes for the production of calcium metaphosphate, fused tricalcium phosphate, and red phosphorus.

As a result of personal contacts, correspondence, and reports, representatives of fertilizer and related industries have become familiar with many of the developments at Muscle Shoals. Numerous TVA improvements, new applications, techniques, designs, and operating procedures are being used by industrial firms, especially in the field of electric-furnace smelting of phosphate. Several commercial furnaces, based on TVA designs, have been constructed and started up with advice from TVA engineers. As these developments have become known there has been an expanding interest in the work at Muscle Shoals.

Division of Chemical Engineering
Tennessee Valley Authority
Wilson Dam, Alabama

APPAREL

HIGH ALTITUDE DECOMPRESSION CHAMBER FACILITIES, by Wayland E. Hull. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Feb 1951. 10p drawings Mi $1.25, Ph $1.25. PB 103238

1. Laboratories, Altitude 2. Suits, Flying - High altitude 3. Guardite Corporation, Chicago, Ill. 4. AAF TSEAA MR C-3-1.

Memorandum report MCREXD-C-3-1.

CHEMICAL AND ALLIED PRODUCTS

Drugs and Pharmaceuticals

PHYSIOLOGICAL EXAMINATION OF 1.1.1.-TRICHLORETHANE (METHYL CHLOROFORM), 1.1.2-TRICHLORETHANE, 1.1-(AS-)DICHLORETHYLENE, DI- AND TRIETHYLAMINE, HYDRAZINE, AND HYDROXYLAMINE. I. G. Farbenindustrie A. G., Schkopau, Ger. 1941-1943. 57f tables (Text in German) Mi $2.75, Enl Pr $8.75. PB 103319

1. Ethane, 1.1.1.-Trichloro - Germany 2. Ethane, 1.1.2.-Trichloro - Germany 3. Ethylene, 1.1-Dichloro - Germany 4. Ethylamine, 2-Chloro - Toxicity - Germany 5. Triethylamine - Physical properties - Germany 6. Hydrazine - Physical properties - Germany 7. Hydroxylamine - Physical properties - Germany 8. Micro BIOS FD 2673/47, Frames 1-55.

English abstract included. Abstract available as PB 103319s. 2p. Mi $1.25, Ph $1.25.

REPORT OF CONFERENCE ON MOTION SICKNESS, NATIONAL ACADEMY OF SCIENCES, WASHINGTON, D. C., 9 SEP 1950, UNDER THE AUSPICES OF PSYCHOPHYSIOLOGY BRANCH, HUMAN RESOURCES DIVISION, OFFICE OF NAVAL RESEARCH, PREPARED by Dr. G. R. Wendt and Dr. William Berry. U. S. Office of Naval Research. Psychophysiology Branch. Sep 1950. 16p Mi $1.75, Ph $2.50. PB 103230

The purpose of the Symposium was to review the present status of research, to discuss basic and applied research which should be expedited or initiated, and to plan ways and means of utilizing the results of research most effectively by the Armed Forces. H. K. Hartline, Chairman.

SUMMARY TABLES OF BIOLOGICAL TESTS, VOLUME 3, NO. 1. U. S. National Research Council. Chemical-Biological Coordination Center. Feb 1951. 68p Mi $3.00, Ph $8.75 Also available free from Chemical-Biological Coordination Center, U. S. National Research Council, 2101 Constitution Ave., Washington 25, D. C. PB 103212

1. Biological chemistry - Tests.

Dyes

COTTON DYESTUFFS CONTAINING METAL, AND NAPHTHOLS FOR WOLLSTRA. PAPERS D1-D15 PRESENTED AT 11TH AKO (AZO COMMISSION) MEETING ON JUNE 24-25, 1937. I. G. Farbenindustrie A. G., Wolfen, Ger. Jun 1937. 88f (Text in German) Mi $3.75, Enl Pr $12.50. PB 103088

1. Patents - Germany J 56747 IVa/22a 2. Cotton - Dyes and dyeing - Germany 3. Dyes, Metallized - Germany 4. Dyes, Naphthol - Germany 5. AKO (Kommission für Azofarben) 6. Micro BIOS FD 3177/48, Frames unnumbered.

Abstract available as PB 103088s. 3p. Mi $1.25, Ph $1.25. Contents: D1. Patent situation in the copper-complex dyestuff field, by Dr. Sückfull. - D2. Attempts to render chromium-complex dyestuffs substantive, by Kleiner. - D3. Substantive dyestuffs from 3-hydroxy-benzidine, by Stüsser. D4. Red benzo-fast-copper dyestuffs from 4.4-diamino-3.3-diphenoxylacetic acid, by Stüsser and Taube. - D5. Sirius dyestuffs with a copper content from the pyrazolene of 2-naphthylamine-5.7-disulphonic acid, by Stüsser. - D6. Dyestuffs with a metal content, from 2-amino-1-hydroxyphenyl-4-ethylsulphone, by Knoche. - D7. Bispyrazolones as coupling components for cotton dyestuffs, by Fischer. - D8. Benzidine-o-o-bishydroxy-acetic acid, by O. Müller. - D9. Cotton dyestuffs for copper aftertreatment, by Messmer. - D10. Gray cotton dyestuffs that are fast to light. - D11. Dyestuffs of the benzo-fast-copper series. - D12. Dyestuffs from aminonaphthoic acids. - D13. Fast dyeing of mixed textiles made from wool and staple yarn with chrome dyestuffs. - D14. Fast development dyeing on Wollstra and neutral water soluble substantive naphthols, by Krzikalla and Alt. - D15. Naphthol AS derivatives with oxalkyl groups in the arylide radical, by Krizikalla and Alt.

Detergents

ÜBER DIE BESTIMMUNG VON SULFAT IN SULFONATHALTIGEN WASCH- UND NETZMITTELN (DETERMINATION OF SULFATE IN SULFATE-CONTAINING DETERGENTS AND WETTING AGENTS), by Eckhardt. I. G. Farbenindustrie A. G., Merseburg Ammonia Works, Germany. Dec 1941. 12f tables (Text in German) Mi $1.75, Enl Pr $3.75. PB 103306

1. Detergents - Analysis - Germany 2. Wetting agents - Analysis - Germany 3. Sulfate - Determination - Germany 4. Micro BIOS FD 3320/46, Frames 01993-02004.

Bericht 784/II.

Agricultural Chemicals

PRECAUTIONS IN THE USE OF INSECTICIDES AND WEED-KILLERS. Gt. Brit. Ministry of Agriculture and Fisheries. Sep 1950. 4p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.05. PB 103219

1. Insecticides - Safety measures - Gt. Brit. 2. Fungicides - Safety measures - Gt. Brit. 3. o-Cresol, 4,6-Dinitro - Safety measures - Gt. Brit. 4. Parathion - Safety measures - Gt. Brit.

Advisory leaflet 374.

Plastics and Plasticizers

AIRCRAFT MATERIAL SPECIFICATION: POLYMETHYL METHACRYLATE SHEETS, PANELS AND SHAPINGS, GRADE A, FOR AIRCRAFT GLAZING.

Gt. Brit. Ministry of Supply. Dec 1950. 4p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.30. PB 103261

1. Methacrylic acid, Methyl ester - Specifications - Gt. Brit. 2. Aircraft - Materials - Specifications - Gt. Brit. 3. MS DTD MS 339B.

Supersedes D.T.D. 339A.

CALCULATION OF COLLAPSE AND SHAKE-DOWN LOADS FOR ELASTIC-PLASTIC STRUCTURES, by B. G. Neal and P. S. Symonds. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. Sep 1949. 65f diagrs, tables Mi $3.00, Enl Pr $10.00. PB 103419

A general method for the determination of critical failure loads on engineering structures is presented. Detailed numerical solutions are given for the case of a single-story two-bay portal frame under typical loading conditions. Two types of problems are treated, namely, that of plastic collapse and that of shake-down of elastic-plastic structures. The loads are assumed to be concentrated forces, and the members of the structure are assumed to be of uniform cross section and material. The basic physical assumption is that "fully plastic moments" exist for positive and for negative curvatures, which provide upper and lower limits on the bending moment at any point. The possible economies that may be realized by the use of either type of plastic design theory are indicated, and certain limitations on the scope of the plastic design methods are emphasized. Contract N7onr-358, T.O.I, NR 041-032. GDAM A11-41/55.

DIELECTRIC PROPERTIES OF BINARY LIQUID MIXTURES, by Robert S. Mallouk and N. Vasileff. Princeton University. Plastics Laboratory. Aug 1949. 32f diagrs, graphs, tables Mi $2.25, Enl Pr $6.25. PB 103410

The dielectric properties of binary liquid mixtures are investigated. The Clausius-Mosotti field is found to be applicable to complexes whose polarizations appear to be constant at all concentrations and the solutions obey Lichtenecker and Rother's law concerning mixtures in that the plot of volume % alcohols vs. log ϵ' is a broken straight line plot. The breaks occur at volume % alcohol corresponding to definite ratios of moles of alcohol to moles of ether (1:1, 3:1, 12:1). A plot of the logarithm of the dissipation factor (ϵ''/ϵ') vs. dielectric constant is also a broken straight line plot, the breaks occuring at values of dielectric constant corresponding to those at which breaks occured in the log ϵ' vs. volume % alcohol plot. Large dipole moments of the complexes responsible for the orientation-polarization contribution to the total polarization, can be calculated independently by the application of the solution of the problem of random flight. Contract W36-039-sc-32011. Dept. of the Army Project: 3-99-15-022. Signal Corps project: 152B. PU PL TR 15B.

EMPIRICAL MINIMUM DIELECTRIC LOSS RELATIONSHIP, by G. E. Crouch, Jr. Princeton University. Plastics Laboratory, Princeton, N. J. n.d. 17p graphs Mi $1.75, Ph $2.50. PB 103115

An expression for the complex dielectric constant of a non polar solid material is developed and results in agreement with previous considerations of Frohlich are obtained. A minimum dielectric loss relationship for a hypothetical solid material is developed and from this relationship certain generalizations for actual materials are drawn. Contract no. W-36-039-sc-32011. Dept. of the Army project: 3-99-15-022. Signal Corps project: 152B. PU PL TR 15A.

Paints, Varnishes and Lacquers

CLEANING AND BRIGHTENING ALUMINUM AIRCRAFT SURFACES, by Stephen A. Matuska and William E. MacKenzie. U. S. Naval Air Material Center. Aeronautical Materials Laboratory, Philadelphia, Pa. Oct 1949. 55f photos, diagr, graph, tables Mi $2.75, Enl Pr $8.75. PB 103421

Sixteen samples of aluminum brightening compounds, from eight manufacturers, and twenty-one samples of NAES formulations were examined to determine the relative efficiencies of brighteners compared with AN-P-88 polishes. It is concluded that the use of brighteners must be restricted to lightly soiled surfaces. Surfaces which have been cleaned with an acid brightener are in excellent condition for a self-polishing wax. A brightener containing phosphoric acid and oxalic acid will leave an insoluble residue; replacing oxalic acid with citric acid gives maximum brightness without an insoluble residue. A satisfactory formulation was developed for a brightener that is not only the equal of the proprietary materials for producing a bright surface but may be used with less danger of corrosion. A specification for cleaning and brightening compounds is included. NAM AML 424513.

TROPICAL PERFORMANCE OF FUNGICIDAL COATINGS, by John M. Leonard and A. L. Pitman. U. S. Naval Research Laboratory. Jan 1951. 16p photo, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.50. PB 103381

One aspect of the moisture- and fungus-proofing of military electronic equipment is the application of organic coatings. These coatings have been developed and specified with little knowledge of their merits under conditions of end use. The fungitoxicities of approximately one hundred different toxic agents dispersed in varnish and lacquer vehicles have been studied by the exposure of coated cotton-braid wires in a tropical jungle. The results indicate that most toxicants are inadequate, especially at the concentrations at present employed. Variance analysis of a portion of the data yields information which will be especially useful in future experiments. NRL R3781.

Chemical Engineering and Equipment

CATALYST PRODUCTION, MONTHLY PLANT REPORTS, JAN 1942-DEC 1944. I. G. Farbenindustrie A. G., Schkopau, Ger. 1942-1944. 75f tables (Text in German) Mi $3.50, Enl Pr $11.25. PB 103309

1. Catalysts, Hydrogenation - Preparation - Germany 2. Catalysts - Production - Germany 3. Micro BIOS FD 2083/47, Frames 1-72.

English abstract included. Abstract available as PB 103309s. 2p. Mi $1.25, Ph $1.25.

CHLORINE PLANT; SODA LYE. REPORTS AND CORRESPONDENCE RELATING TO PRODUCTION OF CALCIUM CHLORIDE. I. G. Farbenindustrie A. G., Schkopau, Ger. 1941-1944. 59f photo, drawing, map (Text in German) Mi $2.75, Enl Pr. $8.75. PB 103315

1. Calcium chloride - Production - Germany 2. Soda und Metzalkalien Ost G.m.b.H., Russia 3. Reichwerke A. G. Herman Goering Stahlwerke, Salzgitter, Ger. 4. Electrolytic cells, Billiter - Diaphragms - Germany 5. Micro BIOS FD 2071/47, Frames 1-58.

English abstract included. Abstract available as PB 103315s. 1p. Mi $1.25, Ph $1.25.

HYDROGEN SULPHIDE PRODUCTION FROM ITS ELEMENTS. I. G. Farbenindustrie A. G., Schkopau, Ger. 1935-1940. 65f photos, tables (Text in German) Mi $2.75, Enl Pr $8.75. PB 103301

1. Hydrogen sulfide - Production - Germany 2. Micro BIOS FD 2080/47, Frames 1-60.

Abstract available as PB 103301s. 3p. Mi $1.25, Ph $1.25.

MONTHLY REPORTS OF THE ETHYL CHLORIDE PLANT, I. G. Farbenindustrie A. G., Schkopau, Ger. Dec 1939-Oct 1944. 40f (Text in German) Mi $2.25, Enl Pr $6.25. PB 103302

1. Ethane, Chloro - Production - Germany 2. Sulfuric acid - Esters - Preparation - Germany 3. Micro BIOS FD 2638/47, Frames 1-38.

Abstract available as PB 103302s. 1p. Mi $1.25, Ph $1.25. For blue prints of the plant see PB 101575.

REPORTS ON VOLTOLIZATION, by Dr. G. W. Nederbragt. Rhenania-Ossag Mineralölwerke A. G., Hamburg, Ger. Jul 1942-Apr 1943. 20f drawings, graphs (Text in German) Mi $1.25, Enl Pr $3.75. PB 103247

1. Voltol (Trade name) 2. Mineral oils - Production - Germany 3. Mineral oils - Solubility - Germany 4. Micro BIOS FD 2874/46, Item 100, Frames 2705-2722.

Abstract available as PB 103247s. 2p. Mi $1.25, Ph $1.25.

Miscellaneous Chemicals

DETERMINATION OF THE MOLECULAR WEIGHT OF HIGH POLYMERS BY MEANS OF ULTRA-CENTRIFUGING AND DIFFUSION MEASURING. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 1943. 135f diagrs, graphs (Text in German) Mi $5.50, Enl Pr $18.75. PB 110392

1. Molecular weights - Determination - Germany 2. Micro BIOS FD 136/47, Frames 1-134.

English abstract included. Abstract available as PB 110392s. 1p. Mi $1.25, Ph $1.25.

EINE NACHWEISREAKTION FÜR ADIPINSÄURE UND PIMELINSÄURE (REACTION TEST FOR THE DETERMINATION OF ADIPIC ACID AND PIMELIC ACID), by Dr. Becke. I. G. Farbenindustrie A. G., Oppau, Ger. Dec 1939. 7f tables (Text in German) Mi $1.25, Enl Pr $2.50. PB 102948

1. Adipic acid - Determination - Germany 2. Pimelic acid - Determination - Germany 3. Micro BIOS FD 1473/49, Frames 1-6.

English abstract included. Abstract available as PB 102948s. 1p. Mi $1.25, Ph $1.25.

GRANDES SINTESIS ORGANICAS UN CAPITULO VENTUROSO DE LA QUIMICA INDUSTRIAL (REPORT OF A VERY SUCCESSFUL INDUSTRIAL CHEMICAL MEETING ON LARGE SCALE ORGANIC SYNTHESIS), by Ladislao Reti. Argentina. Ministerio de Industria y Comercio de la Nacion. Subsecretaria de Industria. Direction General de Industria Manufacturera. Instituto technologico. 1950. 26p photos, diagrs, graphs, tables (Text in Spanish) Mi $2.00, Ph $3.75. PB 103228

1. Chemical compounds, Organic - Synthesis - Argetina 2. Chemistry, Industrial - Argentina 3. Chemistry, Organic - Argentina.

Serie B, Numero 2.

HERSTELLUNG VON TRINATRIUMPHOSPHAT AUS EISENPHOSPHOR (PRODUCTION OF TRISODIUM PHOSPHATE FROM IRON PHOSPHIDE), by R. Michels. Metallgesellschaft A. G., Frankfort, Ger. Feb 1944. 8f (Text in German) Mi $1.25, Enl Pr $2.50. PB 103277

1. Sodium phosphates, Tribasic - Germany 2. Iron phosphide - Derivatives - Germany 3. BIOS FR 1298 LD 4. Micro BIOS HEC 12347 5. Micro BIOS FD 303/48, Frames 177-184.

Abstract available as PB 103277s. 2p. Mi $1.25, Ph $1.25. Listed in BIOS FR 1298, appx. 12.

LUMINESCENT MATERIALS, by Ann G. Fagan. U.S. Signal Corps Engineering Laboratories, Fort Monmouth, N. J. Dec 1946. 22p graphs Mi $2.00, Ph $3.75. PB 102819

The purpose of this report is to outline the activity of these Laboratories in regard to research and development of luminous materials for Signal Corps use and give recommendations for future demands. From the General Engineering Branch, Light Section, Evans Signal Laboratory, Belmar, New Jersey. SCEL TM M1036.

NEUE ERGEBNISSE ÜBER DEN REAKTIONSMECHANISMUS DER POLYMERISATION VON CHLOROPREN (NEW RESULTS OF INVESTIGATIONS INTO THE REACTION MECHANISM OF THE POLYMERIZATION OF CHLOROPRENE), by F. Patat. I. G. Farbenindustrie A. G., Höchst, Ger. Feb 1943. 9f graphs, tables (Text in German) Mi $1.25, Enl Pr $2.50. PB 103293

1. Chloroprene - Polymerization - Germany 2. Micro BIOS FD 1370/48, Frames 121-129.

Abstract available as PB 103293s. 2p. Mi $1.25, Ph $1.25. Submitted to Scientific Rubber Committee meeting on Feb 11, 1943.

PROCESS DEVELOPMENT IN THE HYDROCARBON SYNTHESIS TO 1941, BY S. KODAMA AND OTHERS. REVISED AND EDITED by Robert C. Grass. U. S. Bureau of Mines. Feb 1951. 83p photos, drawings, tables Mi $3.75, Ph $11.25. PB 103134

Starting on a small scale, the equipment for processing synthesis gas to form liquid hydrocarbons was expanded to handle 100 $m.^3/hr$. This reactor was successfully designed and constructed, and a basis for future design methods was established. Translation by Technical Japanese Translation Service, Pasadena, Calif. BM IC 7593.

REACTION BETWEEN TERTIARY AMINES AND ORGANIC ACIDS IN NONPOLAR SOLVENTS, by Samuel Kaufman and C. R. Singleterry. U. S. Naval Research Laboratory. Oct 1950. 28p graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.75. PB 103040

Cryoscopic measurements in benzene solution indicate that a mole of an aliphatic tertiary amine of high molecular weight reacts initially with two equivalents of a fatty acid, and that this product is in equilibrium with free acid and free amine. These amine-acid complexes enter into secondary equilibria with additional acid to form less stable complexes wherein four equivalents of acid are combined with one of amine. The data agree quantitatively with the assigned equilibrium constants. Tertiary aliphatic amines will effectively neutralize strong acids, but they will only reduce to a controlled and low level the concentration of a carboxylic acid in a nonpolar solvent. Pyridine and dimethylaniline are less effective than aliphatic amines in neutralizing carboxylic acids. NRL R 3743.

REPORT ON VISIT TO CHEMICAL INDUSTRIES IN BRITISH AND GERMAN ZONES, APR 15 TO MAY 1, 1947. FIAT TRIP 2432, BIOS TRIP 3242. TEAM: H. Hartman, J. Blitz, A. C. van Ent, C. de Pater, Dudok van Heel. 1947. 14f Mi $1.75, Enl Pr $3.75. PB 103325

1. Chemical industries - Germany 2. Potassium permanganate - Production - Germany 3. I. G. Farbenindustrie A. G., Leverkusen, Ger. 4. Biohum Werk, Grosslappen, Ger. 5. Henkel & Co., Düsseldorf, Ger. 6. Deutsche Gold und Silberscheideanstalt, Knapsack, Ger. 7. Schickert, Otto, & Co., Bad Lauterberg, Ger. 8. Electro Chemische Werke, Munich, Ger. 9. Micro BIOS FD 3678/48, Frames 1-14.

Includes interview with Wilhelm Müller on the manufacture of potassium permanganate, supplementing BIOS FD 2770/46 (PB 95541).

REPORT ON VISITS TO GERMAN CHEMICAL FIRMS: INFORMATION ON PRODUCTION METHODS CONNECTED WITH PERFUMES, ESSENCES AND BARBITALS. Netherlands. Military Mission. Technical Research. 1947. 29f Mi $2.00, Enl Pr $5.00. PB 102952

1. Perfumes - Production - Germany 2. Barbital - Preparation - Germany 3. Essentials oils - Production - Germany 4. Dragoco A. G., Holzminden, Ger. 5. Haarman & Reimer G.m.b.H., Holzminden, Ger. 6. Riedel, J. D.-E.deHaën A. G., Chemische Fabrik, Hamburg, Ger. 7. Riedel, J. D.-E.deHaën A. G., Chemische Fabrik, Seelze, Ger. 8. I. G. Farbenindustrie A. G., Uerdingen, Ger. 9. I. G. Farbenindustrie A. G., Leverkusen, Ger. 10. I. G. Farbenindustrie A. G., Elberfeld, Ger. 11. TOR 32 12. Micro BIOS FD 254/50, Frames 1-27.

See also BIOS FR 1725 (PB 92190) for similar information. Abstract available as PB 102952s. 2p. Mi $1.25, Ph $1.25.

RESEARCH ON FURFUROL, TRANSLATED BY SINCLAIR REFINING CO., RESEARCH AND DEVELOPMENT DEPT., by Herr Köhler. Apr 1949. 6p diagr Mi $1.25, Ph $1.25. PB 804t

Research on furfurol conducted by I. G. Farben, A. G., in Germany is discussed. One of the particularly accessible furfurol derivatives is the condensation product from two mol. furfurol with one mol. acetone, the formula of which is given, or with cyclohexanone, respectively; this compound is obtained nearly quantitatively as a body of luminous yellow color when it is condensed at room temperature in an aqueous alkaline suspension. This product will readily sustain certain changes in the air as in the light, but in a CO_2 medium in the dark it will be stable for some length of time. Depending upon the nature of the catalyst used and upon the rate of temperature, different reaction products are formed under pressure hydrogenation conditions. Translation of PB 804. SR-28.

RING ANALYSIS OF HYDROCARBON MIXTURES, by J. J. Leendertse. Rhenania-Ossag Mineralölwerke A. G., Hamburg, Ger. Oct 1939. 168f graphs, tables (Text in German) Mi $6.25, Enl Pr $22.50. PB 103245

1. Hydrocarbons - Analysis - Germany 2. Ring process - Germany 3. Micro BIOS FD 2875/46, Items 9-10, Frames 003589-3756.

Abstract available as PB 103245s. 1p. Mi $1.25, Ph $1.25.

SOME PHYSICO-CHEMICAL STUDIES ON GALLIUM AND THALLIUM COMPOUNDS, by Therald Moeller and Glendall Lee King. Illinois. University, Urbana, Ill. Nov 1949. 57f photos, graphs, tables Mi $2.75, Enl Pr $8.75. PB 103420

The results of physicochemical studies on gallium and thallium compounds are discussed; pH-measurements, polarographic measurements and X-ray studies were made on the compounds. The following compounds were prepared for the investigation: Gallium (III) bromide, chloride, nitrate and sulfate; thallium (III) bromide, chloride and sulfate; as well as sodium hydroxide solutions, potassium dichromate solution, and iron (III) sulfate solution. The acidic characteristics of gallium (III) and thallium (III) ions in aqueous solutions were obtained by electrometric titrations with sodium hydroxide and by hydrogen ion determinations as functions of concentrations.

STUDIES ON HYDROGENATION OF SULPHITE WASTE LIQUOR, by Anders Björkman. 1950. 40p diagrs, graphs, tables Mi $2.25, Ph $5.00. PB 102931

The problems and possibilities of the hydrogenation of lignin are presented together with a review of the literature. Experiments have been made both with catalysts and with ethanol-alkali, and include a comparative study of wood, holocellulose and acid lignin as well as of the waste liquor. Sulphurfree oils were obtained by rehydrogenation. No compounds have been identified among the products but the results indicate the existence of hydrogenated "dimers" of the lignin unit C_9. Chemistry including metallurgy series Vol. 2, no. 1. Acta polytechnica no. 59, 1950. Sweden. Kungl. Tekniska Högskolan. Handlingar no. 31, 1950.

THEORETICAL ORGANIC CHEMISTRY. PART I (AMERICAN FIAT REVIEW OF GERMAN SCIENCE 1939-1946, VOL. 34) TRANSLATED, EDITED, AND PUBLISHED IN COOPERATION WITH THE OFFICE OF TECHNICAL SERVICES, DEPT. OF COMMERCE BY THE O. W. LEIBIGER RESEARCH LABORATORIES, INC., PETERSBURG, N. Y., by Walter Hückel and F. Seel. Jan 1951. 222p Available from O. W. Leibiger Research Laboratories, Inc., Petersburg, N. Y. $5.30. PB 85016t

Translation of PB 85016.

ELECTRICAL MACHINERY, EQUIPMENT AND SUPPLIES

Communication Equipment

CROSSTALK IN FREQUENCY AND PHASE-MODULATED RADIO RELAYS USED IN CONJUNCTION WITH MULTI-CHANNEL TELEPHONY EQUIPMENT, by Saul Fast. U. S. Camp Coles Signal Laboratory, Red Bank, N. J. Oct 1949. 76p graphs Mi $3.50, Ph $10.00. PB 103375

In transmitting the frequency division multiplexed output of a carrier telephone terminal over a radio relay, the achievement of high signal to crosstalk ratios presents considerable difficulty. A general method is developed for treating crosstalk arising in non-linear circuits. This method is applied to direct and indirect phase and frequency modulators, coupled circuit and single tuned interstages and discriminator circuits. The effect of mistuning is also treated. Relations are obtained between crosstalk to signal ratio per channel and harmonic distortion for each of these circuits. There is considerable difference in crosstalk to signal ratio per channel when frequency or phase modulation is employed. The effect of cascading distorting circuits on the crosstalk is considered and methods of minimizing crosstalk are presented. SCEL TM 1229.

Electronics

AUTOMATIC ANTENNA-TUNING UNIT, by V. True. U. S. Naval Research Laboratory. Nov 1950. 18p diagrs, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.50. PB 102962

An antenna-tuning system has been designed to match automatically the input impedance of a 35-foot whip antenna to a 50-ohm coaxial transmission line over the frequency range of 2 to 18 Mc. This unit has been designed specifically to operate with a Naval Communications Transmitter, type TCK (400-watt output), but the design is such that it is applicable to a wide variety of automatic impedance-matching problems with only minor variations. A satisfactory solution to the technical problems peculiar to such a system has been attained. Detailed consideration was limited to those components designed especially to fill the requirements of this problem. It is concluded that the principal limitations of the range of application of this system are of a physical nature, such as the maximum tuning ranges and voltage ratings available in continuously variable capacitors and inductors. NRL R 3755.

DEVELOPMENT REPORT ON SUBMINIATURE R.F. PENTODE Z-1723, R. F. TWIN TRIODE Z-1724. PROGRESS REPORT NO. 7 FOR CALENDAR MONTH OF MAY 1948 ON CONTRACT W-33-038-AC-18166, by W. T. Millis. General Electric Co., Schenectady, N. Y. May 1948. 18p photos Mi $1.75, Ph $2.50. PB 103169

1. Z-1723 (Vacuum tube) 2. Z-1724 (Vacuum tube) 3. Vacuum tubes, Pentode - Research 4. Vacuum tubes, Triode - Research 5. Vacuum tubes, Miniature - Research.

For report no. 1 see PB 102771; for no. 8-12 see PB 103170-103173, 102773.

DEVELOPMENT REPORT ON SUBMINIATURE R.F. PENTODE Z-1723, H. F. TWIN TRIODE Z-1724. PROGRESS REPORT NO. 8 FOR CALENDAR MONTHS OF JUNE AND JULY 1948 ON CONTRACT W-33-038-AC-18166, by W. T. Millis. General Electric Co., Schenectady, N. Y. Aug 1948. 22p photos, tables Mi $2.00, Ph $3.75. PB 103170

1. Z-1723 (Vacuum tube) 2. Z-1724 (Vacuum tube) 3. Vacuum tubes, Pentode - Research 4. Vacuum tubes, Triode - Research 5. Vacuum tubes, Miniature - Research.

For report no. 1 see PB 102771; for no. 7, 9-12 see PB 103169, 103171-103173, 102773.

DEVELOPMENT REPORT ON SUBMINIATURE R. F. PENTODE Z-1723, H. F. TWIN TRIODE Z-1724. PROGRESS REPORT NO. 9 FOR CALENDAR MONTH OF AUGUST 1948 ON CONTRACT W-33-038-AC-18166, by W. T. Millis. General Electric Co., Schenectady, N. Y. Aug 1948. 24p photos, diagr, tables Mi $2.00, Ph $3.75. PB 103171

1. Z-1723 (Vacuum tube) 2. Z-1724 (Vacuum tube) 3. Vacuum tubes, Pentode - Research 4. Vacuum tubes, Triode - Research 5. Vacuum tubes, Miniature - Research.

For report no. 1 see PB 102771; for no. 7-8, 10-12 see PB 103169-103170, 103172-103173, 102773.

DEVELOPMENT REPORT ON SUBMINIATURE R.F. PENTODE Z-1723, H. F. TWIN TRIODE Z-1724. PROGRESS REPORT NO. 10 FOR CALENDAR MONTHS OF SEPT. AND OCT 1948 ON CONTRACT W33-038-AC-18166, by W. T. Millis. General Electric Co., Schenectady, N. Y. Oct 1948. 19p graph, tables Mi $1.75, Ph $2.50. PB 103172

1. Z-1723 (Vacuum tube) 2. Z-1724 (Vacuum tube) 3. Vacuum tubes, Pentode - Research 4. Vacuum tubes, Triode - Research 5. Vacuum tubes, Miniature - Research.

For report no. 1 see PB 102771; for no. 7-9, 11-12 see PB 103169-103171, 103173, 102773.

DEVELOPMENT REPORT ON SUBMINIATURE R.F. PENTODE Z-1723, H.F. TWIN TRIODE Z-1724. PROGRESS REPORT NO. 11 FOR CALENDAR MONTH OF NOV 1948 ON CONTRACT W33-038-AC-15166, by W. T. Millis. General Electric Co., Schenectady, N. Y. Dec 1948. 3p Mi $1.25, Ph $1.25. PB 103173

1. Z-1723 (Vacuum tube) 2. Z-1724 (Vacuum tube) 3. Vacuum tubes, Pentode - Research 4. Vacuum tubes, Triode - Research 5. Vacuum tubes, Miniature - Research.

For report no. 1 see PB 102771; for no. 7-10, 12 see PB 103169-103172, 102773.

ELECTRON TUBE RESEARCH AND DEVELOPMENT: SUBMINIATURE VERSIONS OF RMA TYPES 6L6, 6AG7, AND ONE-HALF OF 6AS7. FIRST INTERIM ENGINEERING REPORT, PERIOD 30 JUNE 1949 TO 31 AUG 1949, ON CONTRACT AF 33(038)-5734, by George Freedman, Donald O. Holland, Joseph S. Harvey, Alan C. Rockwood, Duncan MacLean. Raytheon Manufacturing Co., Newton, Mass. Sep 1949. 22p graph Mi $2.00, Ph $3.75. PB 103174

1. Tubes, Electron - Research 2. Vacuum tubes, Miniature - Research.
Report 1041-1. For 4th-6th reports see PB 102774-102776.

LOW-NOISE MEASUREMENT OF TUBES FOR INFRARED APPLICATIONS, by P. J. Daly. U. S. Naval Research Laboratory. Sep 1950. 15p diagr, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.50. PB 103042

A basic limitation to the effectiveness of certain infrared detection equipment used at frequencies between 2 cps and 100 cps is the static (flicker) noise and vibration (microphonic) noise present in the input vacuum tubes of the associated electronic amplifiers. An investigation was made of representative commercial tubes in search of low-noise types. No tube investigated met the requirements. The average static noise level of the double triode type 5691 approximated the requirement by a factor of 4. The tube which most nearly fulfilled the vibration requirements was the double triode type 12AY7; below 50 cps, the 6SJ7 and 1620 pentodes compared favorably with it. NRL R 3747.

PRODUCTION SPECIFICATIONS TYPES SD-988. TERMINAL ENGINEERING REPORT ON WORK DONE UNDER CONTRACT NO. W-33-038-AC-15441, FOR THE PERIOD FROM JUNE 25, 1946 TO FEB 28, 1949. Sylvania Electric Products, Inc., Kew Gardens, N. Y. Apr 1949. 48p diagrs Mi $2.50, Ph $6.25. PB 103167

1. SD 998 (Vacuum tube) 2. Vacuum tubes - Standards 3. Vacuum tubes, Diode - Research 4. Vacuum tubes, Pentode - Research 5. Vacuum tubes, Triode - Research.

PROGRESS REPORT FOR OCT-DEC 1950. National Research Council of Canada. Radio and Electrical Engineering Division. Jan 1951. 34p photos Mi $2.25, Ph $5.00. Also available from National Research Council of Canada, Ottawa, Canada. Limited supply for free distribution. PB 103384

1. Engineering, Electrical - Canada 2. Electronics - Canada 3. Radar - Canada 4. Radiophysics Canada 5. NRCC ERA 196.

RADIATION FROM DIELECTRIC RODS OF UNIFORM CIRCULAR CROSS SECTION, by A. E. Marston. U. S. Naval Research Laboratory. Nov 1950. 17p diagr Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.50. PB 103118

The inadequacy of simple, linear array theory to account for the radiation from dielectric rod antennas of uniform circular cross section has been recognized for some time. To obtain a more comprehensive formulation of the radiation fields of such antennas, the method of assumed fields based on the Equivalence Theorems of Schelkunoff is employed. For a rod assumed to be excited in a single transmission mode, the contributions to the radiation field from both the side and end of the rod are obtained in exact closed form valid for all modes. From these formulas the properties of the radiation field are readily deduced. NRL R 3757.

RESEARCH AND DEVELOPMENT OF DOUBLE DIODES, LOW-MU TRIODES, HIGH-MU TRIODES, AND RF PENTODES FOR OPERATION WITHIN HERMETICALLY SEALED EXPENDABLE ASSEMBLIES. INTERIM ENGINEERING REPORT FOR OCT 1, 1946 TO DEC 1,1946 ON CONTRACT W-33-038-AC-15441, by Robert N. Palmer and others. Sylvania Electric Products, Inc., Kew Gardens, N. Y. Jan 1947. 21p graphs, table Mi $2.00, Ph $3.75. PB 103159

1. Tubes, Electronic - Research 2. Vacuum tubes, Diode - Research 3. Vacuum tubes, Pentode - Research 4. Vacuum tubes, Triode - Research.
Report AD-TD-1.

RESEARCH AND DEVELOPMENT OF DOUBLE DIODES, LOW-MU TRIODES, HIGH-MU TRIODES, AND RF PENTODES FOR OPERATION WITHIN HERMETICALLY SEALED EXPENDABLE ASSEMBLIES. INTERIM ENGINEERING REPORT FOR JAN 1, 1947 TO FEB 28, 1947 ON CONTRACT W-33-038-AC-15441, by Robert N. Palmer and others. Sylvania Electric Products, Inc., Kew Gardens, N. Y. Apr 1947. 15p graphs Mi $1.75, Ph $2.50. PB 103160

1. Tubes, Electronic - Research 2. Vacuum tubes, Diode - Research 3. Vacuum tubes, Pentode - Research 4. Vacuum tubes, Triode - Research.
Report AD-TD-3.

RESEARCH AND DEVELOPMENT OF DOUBLE DIODES, LOW-MU TRIODES, AND RF PENTODES FOR OPERATION WITHIN HERMETICALLY SEALED EXPENDABLE ASSEMBLIES. INTERIM ENGINEERING REPORT FOR MAR 1, 1947 TO APR 30, 1947 ON CONTRACT W-33-038-AC-15441, by Robert N. Palmer and others. Sylvania Electric Products, Inc., Kew Gardens, N. Y. May 1947. 18p diagr Mi $1.75, Ph $2.50. PB 103161

1. Tubes, Electronic - Research 2. Vacuum tubes, Diode - Research 3. Vacuum tubes, Pentode - Research 4. Vacuum tubes, Triode - Research.
Report AD-TD-4.

RESEARCH AND DEVELOPMENT OF DOUBLE DIODES, LOW-MU TRIODES, HIGH-MU TRIODES, AND RF PENTODES FOR OPERATION WITHIN HERMETICALLY SEALED EXPENDABLE ASSEMBLIES. INTERIM ENGINEERING REPORT FOR MAR 1, 1947 TO APR 30, 1947 ON CONTRACT W-33-038-AC-15441, by Robert N. Palmer and others. Sylvania Electric Products, Inc., Kew Gardens, N. Y. May 1947. 18p diagr Mi $1.75, Ph $2.50. PB 103161

1. SD 991 (Vacuum tube) 2. Tubes, Electronic - Research 3. Vacuum tubes, Diode - Research 4. Vacuum tubes, Pentode - Research 5. Vacuum tubes, Triode - Research.
Report AD-TD-6.

RESEARCH AND DEVELOPMENT OF DOUBLE DIODES, LOW-MU TRIODES, HIGH-MU TRIODES, AND RF PENTODES FOR OPERATION WITHIN HERMETICALLY SEALED EXPENDABLE ASSEMBLIES. INTERIM ENGINEERING REPORT FOR SEPT 1, 1947 TO OCT 31, 1947 ON CONTRACT W-33-038-AC-15441, by Robert N. Palmer and others. Sylvania Electric Products, Inc., Kew Gardens, N. Y. Oct 1947. 22p tables Mi $2.00, Ph $3.75. PB 103163

1. Tubes, Electronic - Research 2. Vacuum tubes, Diode - Research 3. Vacuum tubes, Pentode - Research 4. Vacuum tubes, Triode - Research.
Report AD-TD-7

RESEARCH AND DEVELOPMENT OF DOUBLE DIODES, LOW-MU TRIODES, HIGH-MU TRIODES, AND RF PENTODES FOR OPERATION WITHIN HERMETICALLY SEALED EXPENDABLE ASSEMBLIES. INTERIM ENGINEERING REPORT FOR NOV 1, 1947 TO DEC 31, 1947 ON CONTRACT W-33-038-AC-15441, by R. N. Palmer, G. C. Rich and others. Sylvania Electric Products, Inc., Kew Gardens, N. Y. Dec 1947. 14p tables Mi $1.75, Ph $2.50.
PB 103164

1. Tubes, Electronic - Research 2. Vacuum tubes, Diode - Research 3. Vacuum tubes, Triode - Research 4. Vacuum tubes, Pentode - Research 5. SD 991 (Vacuum tube).
Report AD-TD-8.

RESEARCH AND DEVELOPMENT OF DOUBLE DIODES, LOW-MU TRIODES, HIGH-MU TRIODES AND RF PENTODES FOR OPERATION WITHIN HERMETICALLY SEALED EXPENDABLE ASSEMBLIES. INTERIM ENGINEERING REPORT FOR MAR 1, 1948 TO APR 30, 1948 ON CONTRACT W-33-038-AC-15441, by Norman Bonney, Benedict Carlat, Robert N. Palmer and others. Sylvania Electric Products, Inc., Kew Gardens, N. Y. Jun 1948. 21p tables Mi $2.00, Ph $3.75. PB 103165

1. Tubes, Electronic - Research 2. Vacuum tubes, Diode - Research 3. Vacuum tubes, Pentode - Research 4. Vacuum tubes, Triode - Research.
Report AD-TD-10.

SUSCEPTANCE OF A THIN IRIS IN CIRCULAR WAVEGUIDE WITH THE TM_{01} MODE INCIDENT, by Kenneth L. Dunning and Rufus G. Fellers. U. S. Naval Research Laboratory. Sep 1950. 32p photos, diagrs, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $1.00. PB 103120

Certain waveguide boundary value problems can be formulated in terms of lumped-constant circuits and distributed-constant transmission lines. Equivalent circuit voltages and currents can be introduced as measures of the transverse electric and magnetic fields. Making use of these concepts and Schwinger's integral equation method, expressions for the susceptance of a thin circular iris in circular cylindrical waveguide with the TM_{01} mode incident were obtained. Measurements of the susceptance of several irises were made and compared with analytical expressions. Agreement was best for irises of large aperture. NRL R 3726.

TERMINAL REPORT FOR CONTRACT W-33-038-AC-15441: DEVELOPMENT OF SD 988-SD996 TUBES. Sylvania Electric Products, Inc., Kew Gardens, N. Y. n.d. 27p photo, graphs Mi $2.00, Ph $3.75. PB 103168

1. Vacuum tubes, Diode - Research 2. Vacuum tubes, Pentode - Research 3. Vacuum tubes, Triode - Research 4. Vacuum tubes, Miniature - Research.

WAVEGUIDE ROTARY JOINT WITH WAVEGUIDE FEED, by L. D. Breetz. U. S. Naval Research Laboratory. Jan 1951. 16p photos, diagrs, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.50. PB 103380

A waveguide rotary joint with waveguide feed permitting continuous 360-degree rotation and stacking of a number of joints with colinear axes has been developed. The joint is in the form of a ring waveguide bent in the E-plane with relative motion of the waveguide feed arms about the circumference of the ring. Attached to the feed arms where they enter the ring are sets of fingers which extend across the guide at an angle to form a double miter bend at the junction. When the feed arms are opposite one another, the adjacent sets of fingers form a power divider. The manner of voltage recombination at the output determines the bandpass characteristics of the joint. An X-band model was built and tested. The joint was found to be useful for receiving and low-power transmitting purposes. Other conceivable applications for the joint are as a waveguide switch and as a stabilization axis joint. In these cases the power need not be limited to low values if the crossover region is not utilized. NRL R 3795.

Miscellaneous

EXPERIENCES WITH THE RAGIOGRAPHIC EXAMINATION OF MAGNESIUM CASTINGS FOR SHOP AND ACCEPTANCE INSPECTION, by A.A.F. Goederitz. 1941. 11f photos, graphs Mi $1.75, Enl Pr $3.75. PB 103252

1. Radiography, Industrial - Germany 2. Castings, Magnesium - Germany 3. Micro RTP/T2565.
Translation from Die giesserei no. 10. 1941 p. 217-224. M-171-46.

HIGH FREQUENCY LOSS LOOPS FOR SATURABLE MAGNETIC CORES, by W. Titman and J. G. Miles. Engineering Research Associates, Inc., St. Paul, Minn. Oct 1950. 46p photos, graphs Mi $3.50, Ph $6.25. PB 102945

This report consists of assembled data and a preliminary analysis relative to saturable magnetic cores. Contract NObsr 42001, Task 23-106 with Bureau of Ships, Navy Department.

INVESTIGATION OF STRESS-STRAIN PROPERTIES OF METAL WIRES BY ELECTRICAL RESISTANCE CHANGES, by Irwin Vigness. U. S. Naval Research Laboratory. Oct 1950. 13p graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.50. PB 103117

A method is described by which the stress-strain curve of a wire tensile specimen can be derived from measurements of its changes of electrical resistance as a function of strain. The method can be applied only to a selected group of metals that have experimentally been shown to be suitable. A material is suitable when its resistance changes per unit of elastic and per unit of plastic strain are each constant and different from each other. The method assumes uniform strain throughout the length of the specimen, which limits conditions studied to those prior to necking. Examples are shown illustrating the linear resistance-strain relations and the applications of the method for several suitable materials. The resistance-strain characteristics of several materials that are not suitable are given, together with a statement of some mechanisms responsible. NRL R 3745.

MEASUREMENT OF TRANSMISSION UNBALANCE OF DUAL COAXIAL AND TWIN CONDUCTOR CABLE, by Isidore Bady. U. S. Squier Signal Laboratory, Fort Monmouth, N. J. Dec 1950. 20p photos, diagrs Mi $1.75, Ph $2.50. PB 103373

Transmission unbalance of dual coaxial and twin

conductor cables can be measured with the test set described in this Technical Memorandum. The frequency range covered is 1 to 25 mc, and 100 to 160 mc, as required in JAN-C-17A. However, the same techniques can be used over a larger range. A description of the component parts, and a discussion of some of the factors involved in the design of the test set are included in this report. Signal Corps project: no. 2006-1. Dept. of the Army project: no. 3-26-00-601. SCEL TM 1344.

POLYTHENE INSULATION AND SHEATHING FROM ELECTRIC CABLES. Gt. Brit. Ministry of Supply. Committee on the Standardisation of Electrical Cables and Wires for Government Services. 1950. 8p drawings, col. chart, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.40. PB 103220

1. Polyethylenes - Insulating properties - Gt. Brit. 2. Cables, Electric - Sheathing, Polyethylene - Gt. Brit. 3. Cables, Electric - Insulation - Gt. Brit.

Government department electrical specification no. 27, 1950.

TABLES OF DAILY INTENSITY AND OUTSTANDING DISTURBANCES OF 10.7-CM SOLAR RADIATION, 1946-49, by A. E. Covington. National Research Council of Canada. Radio and Electrical Engineering Division. Nov 1950. 43p graphs, tables Mi $2.50, Ph $6.25. Also available from National Research Council of Canada, Ottawa, Canada. $.50. PB 102911

1. Solar radiation - Disturbances - Canada 2. NRCC 2240 3. NRCC ERA 192.

FOOD AND KINDRED PRODUCTS

FISHERIES RESEARCH PROGRAM OF JAPAN, by Willis H. Rich. Supreme Commander for the Allied Powers. Natural Resources Section. Jan 1951. 41p tables Mi $2.50, Ph $6.25. PB 103199

1. Fishing industry - Research - Japan 2. SCAP NRS PS 42.

FUNDAMENTAL CAUSES FOR THE STALE FLAVOR DEVELOPMENT IN DRY WHOLE MILK, BY P. H. TRACY AND G. H. WILSTER. U. S. QUARTERMASTER FOOD AND CONTAINER INSTITUTE. COMMITTEE ON FOOD RESEARCH. REPORT NO. 4, MAY 1 - AUG 31, 1946. 1946. 10p tables Mi $1.25, Ph $1.25. PB 103014

1. Milk, Dehydrated - Deterioration 2. Illinois. College of Agriculture. Dept. of Dairy Husbandry, Urbana, Ill. 3. QMC FCI Contract W-44-109-qm-781, Report 4.

Termination report, initiation date, 1 July 1945, on Contract no. W-44-109-qm-781.

PREPARATION OF FIG POWDER, by John E. Brekke and William F. Talburt. U. S. Western Regional Research Laboratory, Albany, Calif. Jul 1950. 7p graphs Mi $1.25, Ph $1.25. PB 102905

Fig powders have been prepared from commercial dried figs by tunnel, vacuum, and drum drying procedures and the resulting powders compared. It was found that the minimum amount of heat damage was incurred in vacuum drying but that drum-drying and tunnel-drying procedures resulted in products considered satisfactory. The latter powders possessed a characteristic fig flavor and, in addition, a slightly caramelized flavor which was considered pleasing. Utilization of fig powder in bakery products is briefly discussed. A colorimetric method for assaying heat damage is described. AIC-283.

STUDY OF POTATO OXIDASE AND PHENOMENA RELATING TO ENZYMATIC DISCOLORATION IN WHITE POTATOES, BY ARTHUR L. SCHADE, LUCY BERGMANN AND AVA BYER. U. S. QUARTERMASTER FOOD AND CONTAINER INSTITUTE. REPORT NO. 4, JULY 1947 - NOV 15, 1947. 1947. 15p graphs tables Mi $1.75, Ph $2.50. PB 103058

1. Potatoes, White - Discoloration 2. Oxidase, Catechol 3. Overly Biochemical Research Foundation, Inc., New York, N. Y. 4. QMC FCI Contract W11-183-qm-198, Report 4.

Phase report, initiation date 1 July 1946, on Contract W11-183-qm-198.

SURVEY OF GERMAN WARTIME FOOD PROCESSING, PACKAGING AND ALLOCATION. FINAL REPORT OF THE FOOD MISSION, PART I, by G. T. Carlin, W. B. Esselen, C. G. Harrel, C. J. Mangan, R. W. Pilcher, W. F. Straub. U. S. Army. European Theater of Operations. Office of the Quartermaster. Technical Intelligence Branch. Procurement Division. Sep 1945. 255p tables Mi $9.00, Ph $32.50. PB 93248

1. Food - Packaging - Germany 2. Food - Preparation - Germany 3. Food, Canned - Germany 4. Food, Dehydrated - Germany 5. Food, Frozen - Germany 6. Containers, Food - Germany 7. Baking - Germany 8. Butter - Manufacture - Germany 9. Fats, Edible - Germany 10. Milling industry - Germany 11. Meat, Canned - Processing - Germany 12. Rationing - Germany 13. Meat, Processed - Manufacture - Germany 14. BIOS M 19 pt. 1.

For pt. II see PB 93249.

SURVEY OF GERMAN WARTIME FOOD PROCESSING, PACKAGING AND ALLOCATION. FINAL REPORT OF THE FOOD MISSION, PART II, by G. T. Carlin, W. B. Esselen, C. G. Harrel, C. J. Mangan, R. W. Pilcher, W. F. Straub. U. S. Army European Theater of Operations. Office of the Quartermaster Technical Intelligence Branch. Procurement Division. Sep 1945. 287p Mi $9.00, Ph $36.25. PB 93249

1. BIOS M 19 pt. 2.

For pt. I see PB 93248.

FUELS AND LUBRICANTS

AIRCRAFT MATERIAL SPECIFICATION: HYDRAULIC OIL, PETROLEUM BASE. Gt. Brit. Ministry of Supply. Jan 1951. 5p diagr Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.30. PB 103262

1. Oils, Hydraulic - Specifications - Gt. Brit. 2. Aircraft - Materials - Specifications - Gt. Brit. 3. MS DTD MS 585.

CHEMIE UND TECHNIK DER ACETYLEN-DRUCK-REACTIONEN (CHEMISTRY AND TECHNIQUE OF THE ACETYLENE COMPRESSION REACTION), by Julius Walter Reppe. May 1950. 45p photos, diagrs

graphs (Text in German) Mi $2.50, Ph $6.25. PB 103378

Table of contents: I. Researches on the decomposition of pure acetylene and acetylene-gas mixtures. II. Safety precautions against acetylene explosions. 1. Safeguards for the laboratory and the plant. 2. Safeguards in technical development and production. III. Development of acetylene pressure chemistry. 1. Development procedures in the laboratory and in the plant. 2. Development in pilot plant and in large scale production. a. Manufacture of vinyl ether. b. Manufacture of butindiol c. Manufacture of butandiol, tetrahydrofuran and of butadiene. Article contains several annotated flow diagrams for various processes, particularly those developed at Ludwigshafen. Delivered in Stockholm Oct 19, 1949 at a meeting of the Royal Swedish Academy of Engineering Sciences. Ingeniörs Vetenskaps Akademien. Meddelande nr 124.

COST AND PRICE CALCULATIONS OF THE TETRACHLORETHANE PLANT INCLUDING AS-DICHLORETHYLENE, TRICHLORETHYLENE, PERCHLORETHYLENE, ETC. I. G. Farbenindustrie A. G., Schkopau, Ger. 1938-1944. 67f tables (Text in German) Mi $3.00, Enl Pr $10.00. PB 103317

1. Ethane, Tetrachloro - Production - Germany 2. Ethane, Dichloro - Production - Germany 3. Ethane, Hexachloro - Production - Germany 4. Micro BIOS FD 2670/47, Frames 1-66.

English abstract included. Abstract available as PB 103317s. 1p. Mi $1.25, Ph $1.25.

DEVELOPMENT OF EXTREME TEMPERATURE LUBRICATING GREASES FROM SILICONES AND SILICONE-DIESTER MIXTURES, by R. L. Merker and W. A. Zisman. U. S. Naval Research Laboratory. Oct 1948. 18p graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.50. PB 103176

Lubricating greases are prepared by dispersing lithium stearate in the several types of silicone fluids with the aid of certain mutual volatile solvents. The aliphatic esters of dicarboxylic acids were found to be miscible with some of the silicone fluids and could be used as nonvolatile mutual solvents. The lithium stearate greases prepared from these silicone-diester mixtures resemble in texture and working properties the greases prepared from lithium stearate and pure diester fluids. They have low syneresis and evaporation rates and effectively lubricate ball and roller bearings over the temperature range of -60° to 325°F when silicones alone are used and -135° to 250°F when silicone-diester mixtures are used. NRL C-3369.

ENTWICKLUNG DER DRAHTZIEHSCHMIERMITTEL IM KRIEGE (DEVELOPMENT OF LUBRICATING AGENTS FOR WIRE DRAWING DURING THE WAR), by Willi Heidenhain. Verein Deutscher Eisenhüttenleute, Düsseldorf, Ger. Nov 1944. 8f (Text in German) Mi $1.25, Enl Pr $2.50. PB 103294

1. Wire - Drawing - Lubricants - Germany 2. Micro BIOS FD 3566/48, Frames 1-8.

Abstract available as PB 103294s. 2p. Mi $1.25, Ph $1.25. Report no. 80.

EXCHANGE OF EXPERIENCE BETWEEN FIRMS OPERATING COAL HYDRATION PLANTS. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 1938-1944. 402f photos, drawings, graphs, tables (Text in German) Mi $9.00, Enl Pr $53.75. PB 103248

1. Coal - Hydrogenation - Germany 2. Coal - Hydrogenation - Equipment - Germany 3. Micro BIOS FD 3548/47, Frames 1-392.

Abstract available as PB 103248s. 1p. Mi $1.25, Ph $1.25.

GREEN RIVER OIL-SHALE RESERVES OF NORTHWESTERN COLORADO, by Carl Belser. U. S. Bureau of Mines. Feb 1951. 66p maps (1 fold), diagrs, graphs, tables Mi $3.00, Ph $8.75. PB 103135

1. Oil shales - Colorado 2. BM RI 4769.

HOW TO BURN WOOD, SIXTH EDITION. Northeastern Wood Utilization Council, New Haven, Conn. Jun 1949. 18p tables Available from Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn. $.25. PB 103346

1. Fuels, Wood 2. Connecticut Forest and Park Association 3. NWUC B28, 6th ed.

Bulletin no. 28.

KOHLENARTEN, AUS DENEN FLÜSSIGE BRENNSTOFFE GEWONNEN WERDEN (TYPES OF COAL FOR HYDROGENATION), by Dr. A. Thau. Deutscher Normenausschuss E. V. Fachkommission Kohlensorten für Hydrierung. Oct 1946. 23f drawings, diagrs (Text in German) Mi $2.00, Enl Pr $5.00. PB 103304

1. Coal - Hydrogenation - Germany 2. Lignite - Hydrogenation - Germany 3. Fischer - Tropsch process - Germany 4. Micro BIOS FD 2939/48, Frames unnumbered.

Abstract available as PB 103304s. 1p. Mi $1.25, Ph $1.25.

MONOCHLORACETIC ACID FROM TRICHLORETHYLENE. I. G. Farbenindustrie A. G., Schkopau, Ger. 1940-1944. 120f (Text in German) Mi $4.75, Enl Pr $16.25. PB 103321

1. Acetylene - Chlorination - Germany 2. Acetic acid, Chloro - Preparation - Germany 3. Micro BIOS FD 2676/47, Frames 1-119.

English abstract included. Abstract available as PB 103321s. 1p. Mi $1.25, Ph $1.25.

PHENOL AND CRESOLS IN COAL TAR FROM COALS CARBONIZED AT 800° AND 900°C, by Erik Bengtsson. U. S. Bureau of Mines. Dec 1950. 10p tables Mi $1.25, Ph $1.25. PB 102814

The purpose of the present investigation was to determine the distribution of lower phenols in coal tar obtained from carbonizing coals of different rank at 800° and 900°C. BM RI 4755.

SAFETY IN JAPANESE COAL MINES, by Major Charles S. Merriam. Supreme Commander for the Allied Powers. Natural Resources Section. Jan 1951. 34p photos, drawings, diagrs, maps, tables Mi $2.25, Ph $5.00. PB 103047

1. Coal mines and mining - Safety measures - Japan 2. SCAP NRS 140.

SCHMIERMITTEL ZUM ROHRZIEHEN (LUBRICANTS FOR TUBE DRAWING), by Dr. Frank. Mannesmann Röhrenwerke, Hückingen, Ger. Apr 1942.

39f diagrs, graphs, tables (Text in German) Mi $2.25, Enl Pr $6.25. PB 103272

1. Tubes - Cold drawing - Lubricants - Germany 2. Lubricants - Specifications - Germany 3. Lubricants - Tests - Germany 4. Micro BIOS FD 476/50, Frames 1-38.

English abstract included. Abstract available as PB 103272s. 1p. Mi $1.25, Ph $1.25. Untersuchungsbericht no. 13/42.

ÜBER DIE VORWÄRMUNG DES SCHMIERÖLS IM FAHRZEUGMOTOR MITTELS STARTKOHLE (PREHEATING OF LUBRICANTS IN CAR ENGINES BY MEANS OF START PROMOTING CARBON TABLETS), by H. Leib. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. Apr 1942. 8f photos, drawings, graphs (Text in German) Mi $1.25, Enl Pr $2.50. PB 103246

1. Engines, Automotive - Lubricating oils - Preheating - Germany 2. Micro BIOS FD 2866/46, Frames 8634-8641.

Abstract available as PB 103246s. 1p. Mi $1.25, Ph $1.25. Bericht 499 des Technischen Prüfstandes Oppau.

VERFAHREN FÜR DIE HERSTELLUNG DER VON DER GESELLSCHAFT FÜR TEERVERWERTUNG M.B.H., DUISBURG-MEIDERICH, AUS STEINKOHLENTEER PRÄPARATE (DIRECTIONS FOR THE PRODUCTION OF COAL TAR PREPARATIONS OF THE GESELLSCHAFT FÜR TEERVERWERTUNG). Gesellschaft für Teerverwertung m.b.H., Duisburg, Ger. n.d. 13f table (Text in German) Mi $1.75, Enl Pr $3.75. PB 103098

1. Coal tar products - Preparation - Germany 2. Micro BIOS DOCS 3074/2618/1 3. Micro BIOS FD 2055/48, Frames 1-12.

Table headings in English.

INSTRUMENTS

BAR-MAGNET VELOCITY METER. by Thomas A. Perls and Erich Buchmann. U. S. David W. Taylor Model Basin, Carderock, Md. Feb 1951. 29p photos, diagrs, graphs (1 fold) Mi $2.00, Ph $3.75. PB 103203

A bar-magnet velocity meter has been investigated both theoretically and experimentally, resulting in a set of characteristics which constitute, in important respects, a marked improvement over the characteristics of previous velocity meters. The instrument consists of a long bar magnet which moves relatively to a long coil. It is shown that Alnico V combines all the best features required of the magnet material, when compared experimentally with a magnet made of hardened tool steel and theoretically with other grades of Alnico, Cunife, and tungsten steel. Different methods are discussed for installing the bar-magnet velocity meter, and a typical application is described, in which the record from this instrument was integrated and differentiated electrically and compared with records from a displacement gage and from an accelerometer, respectively. NS 724-001. DWTMB 723.

DESITOMETER FOR AIRBORNE DOSIMETRY UNIT, by John E. Pickering, John M. Talbot and Everett O. Richey. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Oct 1950. 15p photos, drawing, graphs, tables Mi $1.75, Ph $2.50. PB 103268

1. Densitometers 2. Density, Air - Measurements 3. Photography, X-ray 4. Films (Photography) - Sensitivity 5. Dosimetry, Airborne 6. AAF SAM Proj 21-44-002, Report no. 1.

Formerly Project number 21-02-133.

EVALUATION OF SELECTED SHOCK INSTRUMENTS, by Thomas A. Perls and Harry L. Rich. U. S. David W. Taylor Model Basin, Carderock, Md. Feb 1951. 68p photos, graphs, tables (part fold) Mi $3.00, Ph $8.75. PB 103372

Selected shock instruments have been evaluated in a series of tests in which they were subjected to both steady-state and shock motions. The instruments include velocity meters, accelerometers, multifrequency reed gages, and ball-crusher gages. It is concluded from these tests that the principle of the multifrequency reed gage is potentially most useful for the determination of displacement-frequency data needed for the design of shock-proof equipment and structures. However, the present gage does not adequately provide these data except possibly as averages of many data from several gages. Velocity or acceleration data are needed in addition, to determine specific shock-excitation frequencies. Both types of meters may introduce their own resonant frequencies. Until a better reed gage can be designed, built, and tested, reliable displacement-frequency data will have to be obtained from torsion-pendulum or analogue-computer analyses of velocity meter and accelerometer records, or by recording an accelerometer output through a set of tuned electrical circuits. The suitability of the instruments for these purposes is discussed. The use of electrical differentiators and integrators is recommended in some cases. DWTMB 720.

INVESTIGATION OF POSSIBLE DIMENSIONAL INADEQUACIES OF HOT WIRE ANEMOMETER PROBES AND THEIR EFFECT ON THE HEAT TRANSFER FROM THE WIRE, by I. Richard Grey. Jan 1949. 96f photos, drawings, diagrs, graphs Mi $4.25, Enl Pr $13.75. PB 103393

Experimental investigations concerning the minimum optimum dimensions for certain components of hot wire anemometer probes were conducted and the accumulated data, along with the resultant calculations, are presented. These investigations were conducted in a laminar flow and 1/5-scale tunnels employing a series of three prongless probe tips which were constructed for these studies. It is shown that the dimensions and relative locations of the components of hot wire probe tips cause a considerable disturbance of flow, normal to the airstream, for a finite distance from the end of the probe tip plug. A series of standards are presented by which hot wire anemometer probes, whose physical characteristics are similar and whose errors due to those physical characteristics are minimized, may be constructed. Thesis-Rensselaer Polytechnic Institute, Troy, N. Y.

MANUAL-VERBAL REPONSE TACHISTOSCOPE: DISTRACTING DEVICE FOR INTELLIGIBILITY TESTING (PSYCHOLOGICAL STUDIES OF TRAINING TECHNIQUES, PREPARED by D. K. Wilson, assisted by G. L. Draegert, T. D. Henley, K. A. Ringo. U. S, Office of Naval Research. Special Devices Center, Port Washington, N. Y. Jun 1950. 19p tables Mi $1.75, Ph $2.50. PB 102821

This report describes the Purdue Manual-Verbal Response Tachistoscope, which is an instrument designed to measure intelligibility under conditions of distracting psychomotor activity. The intelligibility testing involves the use of a standardized intelligibility test and the psychomotor tasks consist of eye-hand coordination manipulations. The Purdue Manual-Verbal Response Tachistoscope has been designed primarily for research and training in intelligibility under conditions involving high-level noise. Use of the instrument in combination with Navy Device 8-I, Portable Interphone Trainer makes possible the determination of the effect on voice communication of psychomotor tasks more or less complex in nature, requiring gréater or less precision and rapidity of voluntary hand movements. SDC Human engineering project 20-K-1. Contract N6ori-104, T.O. II. Project designation NR-782-003. SDC TR 104-2-20.

NEW INTERFEROMETER WITH A LARGE WORKING FIELD, by V. E. Bergdolt. U. S. Aberdeen Proving Ground. Ballistic Research Laboratories, Aberdeen, Md. Jan 1949. 26f photos, diagrs Mi $2.00, Enl Pr $5.00. PB 103396

The application of interferometry in the study of gas flow and density fields in connection with a supersonic wind tunnel led to the construction of a new interferometer with small divider plates and large working field of parallel light, produced by a combination of lenses, parabolic mirrors, and flats. The interferometer produces a working field of 4 in. with a 1-1/4-in. beam at the divider plate. The main features of this instrument are that all parts requiring glass of good optical quality are of a reasonably small size, the large optics are merely reflecting surfaces, and the light traverses the disturbed medimum only once. An analysis of the system has not been completed and only the physical characteristics of the system are presented. PPG BRL R692.

OZONE MEASUREMENTS MADE AT VARIOUS NAVAL ESTABLISHMENTS IN NATIONAL EVER-EADY WEATHERING UNITS, MODEL X-1A, by J. R. Britt. U. S. Naval Research Laboratory. May 1949. 26f photo, diagr, graphs, tables Mi $2.00, Enl Pr $5.00. PB 103397

A study was made to determine ozone concentrations in the standard weathering equipment for rubber used at U. S. Navy Establishments. A description is given of the National Eveready Weathering Units, Model X-1A, as well as of the apparatus used to measure ozone concentrations. Results of measurements are given in a series of tables, and comparisons are made between them. It is concluded that a large number of variables affect ozone concentrations, with the greatest differences apparently introduced by arc current and voltage, carbon alignment, air leaks in the test chamber, rate of removal of exhaust gases, and laboratory atmosphere. Therefore, it would be almost impossible to get all X-1A units installed and operated in such a manner as to give comparable results when performing accelerated weathering tests on like rubber specimens. NRL C3475.

SECOND SHORT COURSE IN INDUSTRIAL INSTRUMENTATION, SEPTEMBER 11, 12 AND 13, 1950, SPONSORED BY THE CHEMICAL ENGINEERING DEPT. Florida. University. College of Engineering. Engineering and Industrial Experiment Station, Gainesville, Florida. Mar 1951. 43p photos, drawings, graphs Available free from the Director, Florida Engineering and Industrial Experiment Station, College of Engineering, University of Florida, Gainesville, Florida. PB 103255

1. Instruments, Industrial - Maintenance and repair.

Bulletin series no. 41. Engineering Progress at the University of Florida, Vol. V, no. 3, Mar 1951.

STUDIES ON EFFECTS OF WINDSHIELDS AND/OR AIR OF DIFFERENT DENSITIES ON STEROSCOPIC VISION. II: DESCRIPTION OF A STEREO-METER AND METHOD FOR MEASURING CYCLO-INCONGRUITES, by Paul A. Cibis, Mathew R. Wilson and Horst G. Fleck. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Nov 1950. 24p diagrs, drawings, graphs Mi $2.00, Ph $3.75. PB 102825

The construction of the apparatus is based on the displacement effects of plane-parallel plates. They are interposed in contrasymmetrical position relative to the median plane in such a way that the apparent spatial localization of a target viewed through the plates with reference to another target seen simultaneously with the naked eye can be changed at will and measured by means of the angular position of the plates. The measuring devices are mounted on an adaptation globe. This method can be used to measure spatial differences of virtual images behind mirrors, apparent spatial differences caused by cyclo-incongruities of the eyes or by stereophenomena caused by different latent periods of the perception time in corresponding retino-cerebral elements (Pulfrich-phenomenon) at various states of adaptation and under various environmental conditions. Basic data and curves as well as measurements are presented. For report no. 1 see PB 102702. AAF SAM Proj unnumbered, Report no. 2.

ULTRASCHALLERZEUGUNG NACH DEM PFEIFEN-PRINZIP (GENERATION OF ULTRASONIC VIBRATIONS IN LIQUIDS BASED ON THE PRINCIPLE OF THE PIPE RESONATOR), by R. Pohlman. Siemens-Reiniger Werke A. G., Erlangen, Ger. n.d. 2f diagrs (Text in German) Mi $1.25, Enl Pr $1.50. PB 103330

1. Vibrations, Supersonic frequency - Germany 2. Resonators - Germany 3. Micro BIOS FD 5131/47, Frames 1-2.

Abstract available as PB 103330s. 1p. Mi $1.25, Ph $1.25.

VISIBILITY OF CHARACTERS AT LOW LEVELS OF ILLUMINATION, by L. J. Boardman and L. H. Dawson. U. S. Navy Research Laboratory. Sep 1950. 30p graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.75. PB 103383

Experimental determination is made of military applications of self-luminous and phosphorescent materials with regard to visibility and legibility characteristics related to previous eye exposure. Various tests made are illustrated by graphs. Radioactive phosphors are satisfactory for illumination of the usual instrument dials under darkened conditions at ordinary reading distances. Phosphorescent material is useful for signs with large areas

during emergency operations of a few hours duration for the dark-adapted eye. Curves show the brightness that characters must have to be visible or legible at different intervals of time after previous eye exposures. A brief explanation of this effect is given for the proper understanding of the results. The significance of the cone-to-rod luminance ratio for specifying lamp and filter combinations to be used under darkened ship conditions is discussed. NRL R3740.

LUMBER AND WOOD PRODUCTS

CHIPPED WOOD PRODUCTION AND USES. Northeastern Wood Utilization Council, New Haven, Conn. Jan 1951. 135p photos, diagrs, graphs, tables Available from Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn. $2.00. PB 103348

1. Wood, Chipped - Uses 2. NWUC B 33.

DISCUSSION OF THE GERMAN DEVELOPMENT OF CELLULOSE FOR NITRATION AND A TRANSLATION OF A REPORT ON THE DEVELOPMENT OF CELLULOSE FOR NITRATION FROM CEREAL STRAW, by W. H. Gibson. Aug 1938. 21f Mi $2.00, Enl Pr $5.00. PB 103249

1. Cellulose - Nitrification - Germany 2. Straw - Nitration - Germany.

M-107-46.

EXTRACTIVES FROM NORTHEASTERN WOODS. Northeastern Wood Utilization Council, New Haven, Conn. Aug 1946. 62p tables Available from Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn. $1.00. PB 103340

1. Essential oils - Production 2. Chlorophyll - Determination 3. Wood - Extractives 4. Cellulose, Wood - Uses 5. Forest products - Extractives 6. NWUC B 9 7. NWUC B 6 new edition.

Bulletin no. 9. This bulletin reproduces an earlier review of the literature, Bulletin 6, now out of print. Contents: America's need for essential oils, by Percy C. Magnus. p. 5. - Extractives, a review of literature, by Robert S. Aries. p. 7-32. - Commercial production in the northeast, by Arthur H. Downey. p. 33-38. - Economic extraction of essentials oils, by Robert S. Aries. p. 39-55. - Appendix: Recent essential oil imports into the United States. p. 57-58. - List of American firms producing or dealing with essential oils. p. 59-62.

FOREST INSECT CONTROL IN JAPAN, by R. L. Furniss. Supreme Commander for the Allied Powers. Natural Resources Section. Feb 1951. 33p diagr, map Mi $2.25, Ph $5.00. PB 103202

1. Insect control - Japan 2. Forests and forestry - Insect control - Japan 3. SCAP NRS PS 45.

MANAGEMENT OF PRIVATE CONIFEROUS FORESTS OF JAPAN, by Joseph C. Kircher and Albert K. Dexter. Supreme Commander for the Allied Powers. Natural Resources Section. Jan 1951. 31p photos, graphs, tables Mi $2.25, Ph $5.00. PB 103200

1. Forests and forestry - Management - Japan 2. SCAP NRS PS 43.

PULPING OF SOUTHERN NEW ENGLAND HARDWOODS, by Robert S. Aries. Northeastern Wood Utilization Council, New Haven, Conn. Jun 1948. 26p tables Available from Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn. $1.00. PB 103341

1. Wood pulp industry 2. Wood pulp - Manufacture 3. Wood, Hard - Pulping 4. Technical Association of the Pulp and Paper Industry 5. NSSC (Neutral sulfite semi-chemical process for pulping hardwoods) 6. NWUC B 20.

Bulletin no. 20. Paper presented to the recent annual meeting of the Technical Association of the Pulp and Paper Industry. Bulletin no. 14 was a report of a conference at the New York State College of Forestry at Syracuse in 1946, on "New developments in hardwood pulp".

REPORT ON FOREST RESEARCH FOR THE YEAR ENDING MARCH, 1949. Gt. Brit. Forestry Commission. 1950. 82p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.45. PB 103215

The report covers work carried out by the Forestry Commission staff, as well as research undertaken by workers attached to universities during this period, as follows: Entomology, forest ecology, seed treatment, soil faunal investigations, soil mycology, forest ornithological investigations, etc. S.O. Code no. 70-620-0-49.

SELLING NATIVE LUMBER: REPORT OF SOUTHERN NEW ENGLAND LUMBER PRODUCTS CONFERENCE, STORRS, CONNECTICUT, OCTOBER 23, 1947. Northeastern Wood Utilization Council, New Haven, Conn. Apr 1948. 32p diagrs, tables Available from Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn. $1.00. PB 103342

1. Lumber products 2. Lumber trade 3. Lumbering, Mechanized 4. Building materials - Manufacture 5. Wood finishing 6. Southern New England Lumber Products Conference, 1947 7. NWUC B 21.

Bulletin no. 21. Contents: Foreword, by Floyd M. Collward, Committee chairman and Fred E. Dickinson, Committee Secretary p. 3-4. - Address of welcome by W. B. Young. p. 5. - Industry panel: Use of native grown lumber products, Raymond Kienholz, presiding. p. 7. Retail lumber dealer, by Edmund A. Roy. p. 7-8. - Industrial use, by A. J. Jorgensen, p. 8. - Wood turnings, by Roy F. Cooke. p. 8-9. - Building materials by A. B. Iffland. p. 9-11. - Discussion. p. 11-12. - Seasoning and handling of lumber and wood products, by Roy M. Carter. p. 13-23. - Mechanized logging, by Fred C. Simmons. p. 24-28. Lumber producers panel, Frank W. Morrill, presiding. p. 28-29. - E. Dudley Bartlett p. 29. - Alexander Smith. p. 29. - E. K. Wilcox. p. 29-30. Evans C. Hawes. p. 30-31. - Discussion, by G. S. Oddy. p. 31-32.

SMALL CONTINUOUS WOOD DISTILLATION UNIT, by Robert S. Aries. Northeastern Wood Utilization Council, New Haven, Conn. Sep 1948. 15p drawings, tables Available from Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn. PB 103343

1. Kilns, Charcoal - Switzerland 2. Wood - Distillation - Switzerland 3. Charcoal - Production - Switzerland 4. Ovens, Circulating - Switzerland

5. Roth and Strupp, Wangen a Aare, Switzerland 6. NWUC B24.

Bulletin 24. Supplement to Bulletin no. 15.

SWELLING STRESSES IN GELS AND THE CALCULATION OF THE ELASTIC CONSTANTS OF GELS FROM THEIR HYGROSCOPIC PROPERTIES, by W. W. Barkas. Gt. Brit. Dept. of Scientific and Industrial Research. Forest Products Research Laboratory, Aylesbury, England. 1945. 65p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.30. PB 103217

1. Wood - Elastic properties - Gt. Brit. 2. Wood - Stresses - Gt. Brit. 3. Wood - Water absorption - Gt. Brit. 4. Wood, Impregnated - Stresses - Gt. Brit. 5. Wood gels - Stressed - Gt. Brit. 6. DSIR FPR SP 6 rev.

Revised 1950. S.O. Code no. 47-64-6.

WOOD PRODUCTS FOR FERTILIZER. Northeastern Wood Utilization Council, New Haven, Conn. Jun 1950. 53p photos, graphs, tables Available from Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn. $1.00. PB 103347

1. Wood - Conversion products - Fertilizers 2. Wood waste - Utilization 3. Fertilizers and manures, Wood waste 4. Fertilizers and manures, Lignin 5. Lignin - Conversion products - Fertilizers 6. Maine. University, Orono, Me. 7. NWUC B 32 8. NWUC B 7 new edition.

Bulletin no. 32. Proceedings of a Conference on Wood Products for Fertilizer, held at Orono, Maine, June 29, 1945 in cooperation with the University of Maine were published as Bulletin no. 7. This report is a new edition of Bulletin no. 7. Contents: Foreword. p. 3. - Fertilizer requirements of the north east, by J. A. Chucka. p. 5-9. - Wood ashes as a fertilizer, by Herbert A. Lunt. p. 11-14. - Use of sawdust, shavings, and super phosphate with dairy manure, by A. R. Midgley p. 15-23. - Comparisons of sawdust and wheat straw for bedding, by J. W. White. p. 25-26. - Utilization of waste bark, by R. Glen Fuller, C. B. Harston, and K. Starr Chester. p. 27-32. - Action of soil bacteria on wood products, by Charles Thom. p. 33-40. - Use of lignin in potato fertilizer, by Stuart Dunn. p. 41-44. - Research on lignin as a soil builder, by Robert S. Aries. p. 45-53.

MACHINERY

APPROXIMATE METHOD FOR THE ESTIMATION OF THE DESIGN POINT EFFICIENCY OF AXIAL FLOW TURBINES, by D. G. Ainley. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Aug 1949. 25p fold diagr, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00. PB 103123

A method is outlined for making rapid approximate estimates of the design point efficiency of conventional axial flow turbines. For a number of existing turbines a comparison has been made between the predicted efficiencies and the efficiencies actually recorded on test. As a result of this comparison a final empirical correction to the calculated efficiencies is suggested to give final predictions which should compare favourably with actual values. Memorandum no. M. 59. Cover date is 1950. S.O. Code no. 23-9006-30. ARC CP 30.

COLLECTION OF DRAWINGS RELATING TO APPARATUS, PRESSURE BOILING VESSELS, STIRRERS, CONTAINERS, ETC. FOR THE CHEMICAL AND FOODSTUFFS INDUSTRIES, ALL OF WHICH ARE MADE FROM STAINLESS STEEL. Krupp, Friedrich A. G., Essen, Ger. 1931-1946. 516f drawings only (Legends in German) Mi $9.00, Enl Pr $68.75. PB 103276

1. Food machinery - Design - Germany 2. Chemical industries - Instruments and apparatus - Design - Germany 3. Micro BIOS FD 938/50, Frames unnumbered.

English abstract included. Abstract available as PB 103276s. 3p. Mi $1.25, Ph $1.25. Some frames will not reproduce well.

CONSTRUCTIONAL DRAWINGS OF A UNIVERSAL HARDENING MACHINE. Schoppe & Faeser Feinmechanik G.m.b.H., Minden, Ger. 1948-1949. 707f drawings only (Legends in German) Mi $9.00, Enl Pr $92.50. PB 103331

1. Machinery - Design - Germany 2. Micro BIOS FD 998/50, Frames unnumbered.

Abstract available as PB 103331s. 1p. Mi $1.25, Ph $1.25.

CONTINUOUS OIL EXTRACTION PROCESS BY AUTOMATIC EXTRACTOR, HANSA-MÜHLE SYSTEM. Hansa-Mühle A. G., Hamburg, Ger. Sep 1933-Jun 1940. 50f photos, drawings, diagrs, tables (Text in German and English) Mi $2.50, Enl Pr $7.50. PB 103323

1. Oilseed processing machinery - Germany 2. Oilseeds - Processing - Germany 3. Micro BIOS FD 3208/47, Frames 1-40+10.

FATIGUE TESTING MACHINE FOR APPLYING A SEQUENCE OF LOADS OF TWO AMPLITUDES, by Frank C. Smith, Darnley M. Howard, Ira Smith and Richard Harwell. U. S. National Advisory Committee for Aeronautics. Mar 1951. 24p photos, diagr, graphs, tables Mi $2.00, Ph $3.75. PB 103258

A description is presented of the construction, the operation, and the calibration of two nominally identical fatigue testing machines built at the National Bureau of Standards for applying a sequence of two sinusoidally varying axial loads of different amplitudes, each being applied for a predetermined number of cycles, with the mean load remaining constant. Loads once established can be measured continuously within an accuracy of ± 3 percent. Tests on a sheet material indicated that the loads once set remained constant to within ± 1 percent for the necessary number of loading cycles. NACA TN 2327.

HOME MADE WOOD BURNING FURNACE. Northeastern Wood Utilization Council, New Haven, Conn. Jan 1949. 11p drawings Available from Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn. $.25. PB 103344

1. Furnaces, Wood burning 2. Connecticut Forest and Park Association 3. Jenkins' warm-air furnace 4. NWUC B 26.

Bulletin 26.

L'INFLAMMABILITE DE L'ATMOSPHERE DES CARTERS DE MOTEURS DIESEL (INFLAMMABILITY OF THE ATMOSPHERE OF DIESEL MOTOR CRANK CASES), by H. Bara. Nov 1950. 19p diagrs Mi $1.75, Ph $2.50. PB 102938

The author relates the results of experiments undertaken to determine if the inside atmosphere of a crank-case of a large Diesel engine during normal operation were capable of producing a flame. He concluded in the affirmative by showing the part played in an experimental crank-case by the drops of oil thrown off. Translation of p. 494-499, by Linton T. Stevens. STS 97. NAVSHIPS T 394.

VERSCHLEISSVERHALTEN VON VERCHROMTEN LAUFLÄCHEN (AUF AL-GRUNDLAGE) BEIM OELSCHMIERUNG UNTER VERSCHLEISEMITTELZUSATZ (WEAR BEHAVIOR OF CHROMED BEARING SURFACES). Stuttgart. Technische Hochschule. Institut für die Materialprüfungen des Maschinenbaues. Jun 1941. 32f photos, diagr, graphs, tables (Text in German) Mi $2.25, Enl Pr $6.25. PB 103307

1. Bearings, Aluminum base - Germany 2. Bearings - Erosion - Germany 3. Piston rings - Wear - Germany 4. Micro BIOS FR 4889/47, Frames 1-31.

Abstract available as PB 103307s. 1p. Mi $1.25, Ph $1.25.

MEDICAL RESEARCH AND PRACTICE

CARBON MONOXIDE IN T-28 AIRCRAFT, by Wayland E. Hull. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Nov 1950. 17p tables Mi $1.75, Ph $2.50. PB 102998

1. T-28A (Airplane) 2. Carbon monoxide - Effects 3. Carbon monoxide - Toxicity 4. Airplanes, Transport - Carbon monoxide detection 5. AAF TSEAA MR 696-108D.

Memorandum report MCREXD-696-108D. Contents: Appendix I. Analyses for blood carbon-monoxide, p. 3-6. - Appendix II. Carbon monoxide content of cabin air in T-28A aircraft, by John A. Booth. Sep 1950. p. 7-17.

MONOCULAR BLINDNESS. REPORT OF A SUB-COMMITTEE OF THE SCIENTIFIC ADVISORY COMMITTEE. Gt. Brit. Dept. of Health for Scotland. Scientific Advisory Committee. 1950. 22p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15. PB 103218

From sources of information, it appears generally: (a) that the important causes, ignoring later adult life and old age, are untreated squint and amblyopia of childhood, and to a lesser extent injury; (b) that, apart from some male excess in injuries, there is no significant sex variation; (c) that the condition is not from the industrial point of view, seriously incapacitating or, relative to other problems, of great public health importance; but it is sufficiently common to point the need for early treatment of squint and the zealous pursuit of measures designed to prevent damage from industrial eye injury. Tables are attached. T. Ferguson, Chairman. S.O. Code no. 49-346.

PATTERN OF GAS EXPULSION FROM THE LUNGS OF HUMAN SUBJECTS DURING RAPID DECOMPRESSION, by F. G. Hall. U. S. Air Materiel Command, Wright-Patterson Air Force Base, Dayton, O. Sep 1950. 18p drawing, graph, tables Mi $1.75, Ph $2.50. PB 102919

The pattern of gas expulsion from the lungs of human subjects during rapid decompression has been photographically recorded. The purpose of this study was to determine limits of tolerance of aviation to rapid and explosive decompression in pressurized aircraft. For rapid decompression lasting for more than one second, no significant physiological limitations were observed. Contract no. W33-038-ac-18502 with Duke University. AAF TR 6239.

PERIODIC STATUS REPORT XV, PERIOD 16 MAY 1950-15 NOV 1950, RESEARCH UNDER CONTRACT N5ORI-76 PROJECT ORDER II, PROJECT NR. 142-201. Harvard University. Psycho-Acoustic Laboratory. Nov 1950. 23p Mi $2.00, Ph $3.75. PB 102811

1. Hearing - Physiology 2. Speech - Intelligibility 3. Hearing aids 4. Noise - Physiological effects 5. PNM 32.

PHYSIOLOGICAL STUDIES OF THE TOXICITY OF 2.4-DICHLOROPHENOXYACETIC ACID, by Glenn Elmore Davis. 1949. 141f photos, graphs, tables Mi $5.75, Enl Pr $20.00. PB 103190

A thesis is presented on physiological studies of the toxicity of 2.4 dichlorophenoxyacetic acid with special attention given to the herbicidal effects when the plants are low in carbohydrates. Experiments were conducted to determine the toxic effect of reducing the carbohydrate level of the treated leaf before, during, and after treatment; the effect of different day lengths and carbohydrate level at the time of treatment upon subsequent toxicity; the effect of a single short light-exposure period on treated plants following a period of starvation; and the effect of externally applying mixtures of carbohydrates and 2,4-D to starved plants. The effect of supplying 2,4-D and sucrose as separate solutions through opposite primary leaves and through a cut silver in the hypocotyl of starved plants, and the effect on starved plants of low concentrations of 2,4-D applied in the same manner were also investigated. Thesis-Cornell University.

RESPIRATORY HEAT EXCHANGE WITH VARYING TEMPERATURE AND HUMIDITY OF INSPIRED AIR, by Joseph W. McCutchan and Craig L. Taylor. U. S. Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio. Oct 1950. 44p drawing, graphs, tables Mi $2.50, Ph $6.25. PB 102912

Respiratory heat exchange has been measured by determinations of temperature, humidity and mass flow of inspired and expired airs. The ranges of inspired temperatures and humidities were 80 to 180°F and 0.2 to 1.2 in. Hg vapor pressure resp. Specific enthalpy difference between inspired and expired airs proved to be the most fundamental heat quantity: (a) as judged by satisfactory predictive relationships which are independent of rate and volume of respiration, (b) as established by satisfactory theoretical accountings for the heat and mass transfer process. Contract no. W-33-038-ac-14504 with University of California. AAF TR 6023.

SEMI-ANNUAL TECHNICAL PROGRESS REPORT 31 DEC 1950: AERO-MEDICAL SUBCOMMITTEE, AERO-MEDICAL LABORATORY SUPPLEMENT, VOL. II. CASE NO. 5-3, REPORT NO. 3. U. S. Air Force. Technical Committee, Wright-Patterson Air Force Base, Dayton, Ohio. Dec 1950. 104p Mi $4.50, Ph $13.75. PB 103349

1. Medicine, Aviation - Research 2. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio.

Report on projects of the Aero-Medical Laboratory.

SEMI-ANNUAL TECHNICAL PROGRESS REPORT 31 DEC 1950: AERO-MEDICAL SUBCOMMITTEE, USAF SCHOOL OF AVIATION MEDICINE & ARCTIC AEROMEDICAL LABORATORY SUPPLEMENT, VOL. II. CASE NO. 5-3, REPORT NO. 3. U. S. Air Force. Technical Committee, Wright-Patterson Air Force Base, Dayton, Ohio. Dec 1950. 214p Mi $7.75, Ph $27.50. PB 103350

1. Medicine, Aviation - Research 2. U. S. Air Force. Arctic Aeromedical Laboratory, Ladd Air Force Base, Alaska. 3. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas.

Report on projects of the Arctic Aeromedical Laboratory and on projects of the School of Aviation Medicine.

STUDIES ON CAPILLARY PERMEABILITY, by Chester Hyman, Sheldon Rosenfeld, Rita Paldino, Thomas E. Nelson. U. S. Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio. Sep 1950. 27p drawings, graphs, tables Mi $2.00, Ph $3.75. PB 102918

The work on this contract was directed toward the evaluation of vascular permeability and the effect of anoxia thereon. During the course of the work several techniques for estimating changes in the rate of trans-capillary filtration were employed and these showed negligible differences between the normal and anoxic capillaries. A simplified recording bubble flow meter was developed and is described in this report. Contract no. W33-038-ac-19062 with University of Southern California. AAF TR 6238.

METALS AND METAL PRODUCTS

AIRCRAFT MATERIAL SPECIFICATION: NICKEL-COBALT-CHROMIUM HEAT RESISTING ALLOY (WROUGHT) FOR GAS TURBINE BLADES (NIMONIC 90). Gt. Brit. Ministry of Supply. Aug 1950. 3p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.30. PB 103066

1. Turbines, Gas - Blades - Gt. Brit. 2. Nimonic 90 (Nickel-cobalt-chromium alloy) 3. Nickel-chromium-cobalt alloys, Heat resisting - Gt. Brit. 4. MS DTD MS 747.

CRACKROHRE AUS FF6N (DEURAG) (CREEP TESTS WITH STEEL TUBES OF FF6N STEEL), by Hunlich. Mannesmann Röhrenwerke, Hückingen, Ger. Oct 1941. 11f photos, tables (Text in German) Mi $1.75, Enl Pr $3.75. PB 103271

1. Steel, Chromium-molybdenum - Tests - Germany 2. Steel - Creep tests - Germany 3. Tubes, Steel - Tests - Germany 4. FF6N (Steel) 5. Micro BIOS FD 466/50, Frames 1-10.

English abstract included. Abstract available as PB 103271s. 1p. Mi $1.25, Ph $1.25. Untersuchungsbericht no. 28/41.

CREEP OF LEAD AT VARIOUS TEMPERATURES, by Peter W. Neurath and J. S. Koehler. U. S. National Advisory Committee for Aeronautics. Mar 1951. 32p drawings, graphs, tables Mi $2.25, Ph $5.00. PB 103285

An investigation was conducted on single crystals of lead and on crystals of copper and zinc to determine the creep properties for a wide range of temperatures. The apparatus used in the preparation and testing of the specimens is described in detail. The results are presented in the form of tables and in charts of strain against time at different stresses for the different specimens. NACA TN 2322.

DEVELOPMENT OF MAGNESIUM-CERIUM FORGED ALLOYS FOR ELEVATED-TEMPERATURE SERVICE, by K. Grube, R. Kaiser, L. W. Eastwood, C. M. Schwartz, and H. C. Cross. U. S. National Advisory Committee for Aeronautics. Mar 1951. 80p photos, graphs, tables Mi $3.50, Ph $10.00. PB 103358

Results obtained during an investigation of magnesium-cerium forged alloys are described; the development of improved alloys and a study correlating alloy composition and structure with the resistance to creep are covered. As a result of this investigation, the optimum composition of a magnesium-cerium alloy possessing superior high-temperature tensile properties was determined. NACA TN 2325.

EFFECTS OF SOME SOLUTION TREATMENTS FOLLOWED BY AN AGING TREATMENT ON THE LIFE OF SMALL CAST GAS-TURBINE BLADES OF A COBALT-CHROMIUM-BASE ALLOY. PART I: EFFECT OF SOLUTION-TREATING TEMPERATURE, by C. Yaker and C. A. Hoffman. U. S. National Advisory Committee for Aeronautics. Mar 1951. 29p photos, graphs, tables Mi $2.00, Ph $3.75. PB 103286

Samples of small cast AMS 5385 turbine blades, solution-treated for 1/2 hour at 2100°, 2250°, and 2350° F and then aged for 48 hours at 1500° F were operated at an estimated temperature of 1500° F with a centrifugal stress of 20,000 pounds per square inch at the expected failure zone. The experimental results indicated that all treatments lengthened the time to initial failure and improved the mean life of the blades. These results were confirmed by a statistical analysis. NACA TN 2320.

ENTWÄSSERUNG UND ZERSETZUNG VON ALUMINUMSULFAT (DEHYDRATION AND DECOMPOSITION OF ALUMINUM SULPHATE). Metallgesellschaft A. G., Frankfort, Ger. Apr-Jun 1942. 26f graph, tables (Text in German) Mi $2.00, Enl Pr $5.00. PB 103091

1. Aluminum sulfate - Dehydration - Germany 2. Aluminum sulfate - Thermal decomposition - Germany 3. Micro BIOS HEC 12281 4. Micro BIOS HEC 12284 5. Micro BIOS HEC 12287 6. Micro BIOS FD 270/48, Frames 1-26.

Abstract available as PB 103091s. 2p. Mi $1.25, Ph $1.25. Reports no. 1912, no. 1918, no. 1923.

EXPERIMENTS ON THE USE OF IRON CATALYSTS IN THE SYNTHESIS OF HYDROCARBONS AT ATMOSPHERIC PRESSURE AND AT MEDIUM PRESSURE. Ruhrchemie A. G., Oberhausen-Holten, Ger. 1943-1944. 269f drawings, graphs, tables (Text in German) Mi $9.00, Enl Pr $36.25. PB 103324

1. Hydrocarbons - Synthesis - Germany 2. Catalysts, Iron - Germany 3. Micro BIOS FD 3350/48, Frames 1-258.

Abstract available as PB 103324s. 1p. Mi $1.25, Ph $1.25.

FATIGUE STRENGTHS OF AIRCRAFT MATERIALS: AXIAL-LOAD FATIGUE TESTS ON UNNOTCHED SHEET SPECIMENS OF 24S-T3 AND 75S-T6 ALUMINUM ALLOYS AND OF SAE 4130 STEEL, by H. J. Grover, S. M. Bishop, and L. R. Jackson. U. S. National Advisory Committee for Aeronautics. Mar 1951. 62p photos, drawings, graphs, tables Mi $3.00, Ph $8.75. PB 103356

Axial-load fatigue strengths of unnotched and polished sheet specimens of 24S-T3 and 75S-T6 aluminum alloys and of SAE 4130 steel were determined over a wide range of stress values and lifetimes. Data are in agreement with previous information and extend it somewhat. Results indicate fatigue strength may be reduced about 10 percent when speed of testing is changed from 1100 to 90 cycles per minute. Two-stress-level tests of fatigue damage show damage ratios different from cycle ratios. NACA TN 2324.

LIFE IMPROVEMENT OF ELECTRON TUBES BY REDUCTION OF GAS EVOLUTION, by Dr. Walter Knecht. U. S. Air Materiel Command. Engineering Division. Components and systems Laboratory. Electronic Subdivision. Oct 1950. 15p diagr, graph, tables Mi $1.75, Ph $2.50. PB 103133

Life improvement of electron tubes starts with the improvement of the exhaust system and the processing schedule used. Reliability is built into electron tubes to a high degree by treating all parts of the tube design while under exhaust in such a manner that subsequent evolution of gas is reduced to the minimum. As to the modifications of treatments used, electron bombardment of metal parts evolves more gas than radio-frequency heating of metal parts subjected to the same temperature of degassing. Another modification of bombardment produced by a gas discharge increases the gas evolution of glass bulbs. It is concluded that in order to obtain a high degree of reliability and long shelf life it is necessary to use in production an exhaust system capable of producing a high degree of vacuum (10^{-6}mm mercury) and particle bombardment of tube parts during the processing schedule. AAF TR 6259.

MANUFACTURE OF DUCTILE TITANIUM AND TITANIUM ALLOYS, BY L. S. BUSCH AND R. H. FREYER. TITANIUM PROJECT, NAVY CONTRACT NO. NOA(S)8698, REPORT NO. 17, FINAL REPORT FOR PERIOD APR 1, 1947 TO SEP 1, 1948. Mallory, P. R., & Co., Inc., Indianapolis, Ind. Sep 1948. 186p photos, fold tables Mi $6.75, Ph $23.75. PB 103370

1. Titanium - Production 2. Titanium alloys - Manufacture 3. Titanium alloys - Properties. Metallurgical Engineering Dept. Memo. no. 8000-M-435. See also PB 100000 and PB 102870.

NEUE WEGE ZUR MANGANKONZENTRATION BEI DER ROHEISENERZEUGUNG (NEW METHODS OF MANGANESE CONCENTRATION IN PIG IRON PRODUCTION). Verein Deutscher Eisenhüttenleute, Düsseldorf, Ger. Aug 1944. 19f drawing, graphs, tables (Text in German) Mi $1.75, Enl Pr $3.75. PB 103300

1. Cast iron - Manganese content - Germany 2. Cast iron - Production - Germany 3. Ferromanganese - Production - Germany 4. Micro BIOS FD 2004/48, Frames 1-18.

Abstract available as PB 103300s. 3p. Mi $1.25, Ph $1.25. Contents: Experiments at Königshütte, by Heinrich Rosenbaum. - Experiments in the blast furnace works Essen-Borbeck, by Reiner Ahren. - Refining of S.M. pig iron and spiegeleisen for obtaining high manganese containing slags, by Paul Ischebeck. - Experience gained and results obtained in the production of manganese slags and ferro-manganese, by A. Wilhelmi. - Production of ferro-manganese for low-grade manganese ores, by Jacob Willems and Paul Ischebeck.

NICKEL UND MOLYBDÄN-FREIE VERGÜTUNG-STÄHLE FÜR LEICHTSTAHLFLASCHEN (NICKEL AND MOLYBDENUM-FREE HEAT TREATABLE STEELS FOR LIGHT STEEL GAS CYLINDERS), by Pusch. Mannesmann Röhrenwerke, Hückingen, Ger. May 1940. 33f photos, graphs, tables (Text in German) Mi $2.25, Enl Pr $6.25. PB 103270

1. Cylinders, Gas - Materials - Germany 2. Steel - Tests - Germany 3. Steel, Chromium-manganese-vanadium - Germany 4. Micro BIOS FD 429/50, Frames 1-29.

English abstract included. Abstract available as PB 103270s. 1p. Mi $1.25, Ph $1.25. Untersuchungsbericht no. 14/40.

PRÜFUNG DÜNNWANDIGER STAHLROHRE MIT ASBESTZEMENT-BZW. ASBEST-KALK-QUARZ-UMHÜLLUNG (TESTS OF STRENGTH PROPERTIES OF THIN-WALLED STEEL TUBES LAGGED WITH ASBESTOS CEMENT, AND/OR WITH A MIXTURE OF ASBESTOS, LIME AND QUARTZ), by Dr. Dickens and Dr. Brauns. Mannesmann Röhrenwerke, Hückingen, Ger. Jan 1943. 10f drawing, tables (Text in German) Mi $1.25, Enl Pr $2.50. PB 103273

1. Tubes, Steel - Tests - Germany 2. Micro BIOS FD 481/50, Frames 1-9.

English abstract included. Abstract available as PB 103273s. 1p. Mi $1.25, Ph $1.25.

RELATION OF CASTING QUALITY TO GATING PRACTICE, by W. H. Johnson, H. F. Bishop, and W. S. Pellini. U. S. Naval Research Laboratory. Jan 1951. 17p photos, drawings, table Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.50. PB 103382

Studies have been made of the effects of gate design and associated metal-flow conditions on casting quality. It was found that the type of gating employed for steel and iron is unimportant provided inflow

velocities are not so excessive as to cause deterioration of the mold. Drossing metals, however, such as aluminum and manganese bronze, require specialized gating procedures to insure a minimum of metal-to-air contact in gate and mold. The use of moderately choked systems is indicated as best practice for these metals. NRL R 3786.

SOME PROPERTIES OF HIGH-PURITY SINTERED WROUGHT MOLYBDENUM METAL AT TEMPERATURES UP TO 2400° F, by R. A. Long, K. C. Dike, and H. R. Bear. U. S. National Advisory Committee for Aeronautics. Mar 1951. 57p photos, drawings, graphs, tables Mi $2.75, Ph $7.50. PB 103357

High-purity, sintered, wrought molybdenum metal was investigated as to tensile-strength properties to 2400° F and effects thereon of swaging, recrystallization, and "test-section" area. Additional studies were made on stress-rupture properties, types of fracture, directional properties of rolled plate, and metallography of swaged and recrystallized molybdenum. Outstanding mechanical properties reported are: tensile strengths from 1800° to 2400° F of 33,670 and 27,500 pounds per square inch; 100-hour strength at 1800° F of 19,300 +300 pounds per square inch. The properties of materials evaluated varied with degree of "effective" cold working, recrystallization, temperature, and manufacturing source. NACA TN 2319.

STUDIES ON TELLURIM-SELENIUM ALLOYS, by E. Grison. Massachusetts Institute of Technology. Laboratory for Insulation Research. Mar 1951. 26p diagrs, graphs, tables Mi $2.00, Ph $3.75. PB 103449

Tellurium and metallic (hexagonal) selenium were shown to give solid solution in any concentration. The variation of the cell dimensions with composition departs only slightly from linearity: c shows a certain tendency to contraction (this corresponds to a smaller valency angle in the chains of atoms than is required by a linear variation); a varies much less (2 percent between Se and Te) and in a manner which depends upon the preparation of the alloys. The presence of sharp (hk.ℓ) lines with $\ell \neq 0$ in all the alloys suggests that these must be composed not of homogeneous chains but of composite chains, in which the homogeneous sequences must be fairly short. The bond lengths in pure Se and pure Te have been redetermined. O.N.R. Contract N5ori-07801. MIT LIR TR 38.

STUDY OF SOME ASPECTS OF SINTERING AND PRECIPITATION REACTIONS IN ALNICO V., by Donald W. Kinsey. Jun 1949. 68p photos, diagrs, graphs, tables Mi $3.00, Ph $8.75. PB 103496

In connection with the problem of consistently producing Alnico V magnets with superior magnetic properties, two separate phases were investigated. These were the production of single crystals of Alnico V for the purpose of studying the changes in orientation of the direction of easy magnetization as a function of heat treatment, and the retardation of the high-temperature precipitation rates so that maximum benefit from cooling the magnets in a magnetic field could be realized. The effects of varying the percentages of nickel, cobalt, zirconium, and silicon upon the high-temperature precipitation rate are outlined, and the properties of magnets with zirconium and silicon added are discussed. Thesis-Rensselaer Polytechnic Institute, Troy, N. Y.

TECHNICAL REPORT ON PRACTICAL METHODS OF REDUCING THE AMOUNT OF FUMES FROM OIL BONDED CORES. Gt. Brit. Ministry of Labour and National Service. Joint Standing Committee on Conditions in Iron Foundries. 1950. 10p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.10. PB 103226

1. Cores - Binding agents - Fumes - Gt. Brit. H. A. Hepburn, Chief Inspector of Factories, Chairman. S. O. Code no. 36-193.

TECHNICAL REPORT TO THE OFFICE OF NAVAL RESEARCH, DEPT. OF THE NAVY, ON WORK DONE UNDER CONTRACT N5-ORI-136, TASK ORDER II, SEP 1, 1948 TO AUG 31, 1949, by Norman Hackerman and others. Texas. University, Dept. of Chemistry. Sep 1949. 146f graphs, tables Mi $5.75, Enl Pr $20.00. PB 103196

The report on this work has been divided into four parts, Part I consists of three categories, namely, the adsorption of single components on steel powder from benezene solution, the adsorption of a second component from similar solution on steel powder pretreated as in the first case, and the effect of each of these pretreatments on the reactivity of the steel powder in aqueous hydrochloric acid solution. The exploratory and preliminary work on adsorption of C14 carboxyl-tagged stearic acid on massive steel pieces is dealt with in Part II, and adsorption isotherms of several gases on metal powders are described in Part III. In the last part of the report the results of measuring the effect of the additives on the potentials of anodically and cathodically polarized steel are given.

TITANIUM-CHROMIUM BINARY ALLOYS, by M. F. Fontana. U.S. Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio. May 1950. 79f photos, diagrs, graphs, tables Mi $3.50, Ph $11.25. PB 103114

1. Alloys, Binary 2. Titanium-chromium alloys 3. Furnaces, Electric arc 4. Furnaces, Induction 5. Ohio State University Research Foundation, Columbus, Ohio 6. AAF TR 5946.

ÜBER DIE AUFLÖSUNG VON STÄHLEN IN ZINKSCHMELZEN (CORROSIVE ATTACK OF MOLTEN ZINC ON ALLOY STEELS USED IN THE MANUFACTURE OF GALVANIZING KETTLES), by Dr. Dickens and Dr. Brauns. Mannesmann Röhrenwerke, Hückingen, Ger. Apr 1943. 36f photos, tables (Text in German and English) Mi $2.25, Enl Pr $6.25. PB 103274

1. Steel alloys - Corrosion - Germany 2. Steel - Galvanizing - Germany 3. Zinc - Effect on steel - Germany 4. Micro BIOS FD 485/50, Frames 1-18, abstract.

English abstract included. Abstract available as PB 103274s. 1p. Mi $1.25, Ph $1.25. Untersuchungsbericht no. 12/43.

METEORALOGY AND CLIMATOLOGY

COLLOIDAL METEOROLOGICAL PROCESSES IN THE FORMATION OF ATMOSPHERIC PRECIPITATION, by M. Findeisen. Apr 1938. 18f drawing, graph Mi $1.75, Enl Pr $3.75. PB 103257

1. Meteorology - Germany 2. Micro RTP/T2573.

Translation from Met. zeitschrift v. 55, no. 4, p. 121-133, April 1938. M452-46.

UPPER ATMOSPHERE RESEARCH REPORT XII: DIRECT MEASUREMENTS OF SOLAR EXTREME ULTRAVIOLET AND X-RAYS FROM ROCKETS BY MEANS OF A $CASO_4$: MN PHOSPHOR, by K. Watanabe, J. D. Purcell and R. Tousey. U. S. Naval Research Laboratory. Sep 1950. 54p photos, diagr, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $1.50. PB 103043

Measurements of extreme ultraviolet and X-rays from the sun were made from V-2 rockets during 1948-1950 by means of a $CaSO_4$: Mn thermoluminescent phosphor. Data from four rocket firings show the presence in sunlight at high altitudes of extreme ultraviolet radiation of wavelengths less than 1300 A and of soft X-rays. The properties of the phosphor were studied. The phosphor is unique in having no sensitivity to wavelengths longer than 1300 A together with excellent sensitivity to the extreme ultraviolet, X-rays, and gamma rays. These characteristics make it possible to measure the short wavelength radiations present in sunlight at high altitudes in the earth's atmosphere by exposing samples of the phosphor to total sunlight. For report 9 see PB 100729; for report 11 see PB 102006. NRL R3733.

MINERALS AND MINERAL PRODUCTS

DESIGN OF CONCRETE MIXES. SECOND EDITION. Gt. Brit. Dept. of Scientific and Industrial Research. Road Research Laboratory, Harmondsworth, England. 1950. 18p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15. PB 103227

1. Concrete - Mix proportions - Gt. Brit. 2. DSIR RRL RN 4, 2nd ed.

S.O. Code no. 47-141-4-50. See PB 92646 for the first edition.

MECHANOCHEMISTRY OF THE DISPERSION OF MERCURY IN LIQUIDS IN AN ULTRASONIC FIELD, by Evelyn C. Marboe and W. A. Weyl. Pennsylvania State College, School of Mineral Industries. Aug 1949. 7p table Mi $1.25, Ph $1.25. PB 102860

The mechanochemistry of the dispersion of mercury in liquids in an ultrasonic field was investigated. The dispersion requires the presence of strong forces between the metal and the medium when under the influence of ultrasonic vibrations. Strengthening the forces between the two incompatible media enhances dispersion and stabilizes the emulsion. This can be accomplished in three ways, viz., compound formation between the metal and a part of the liquid, image forces induced in the metal surface by molecules with a permanent dipole and metallophilic groups such as strongly polarizable cations. Contract no. N6 onr 269, Task order 8. NR 032-265. PSC SMI TR9.

PHYSICAL PROPERTIES OF ACTIVE NITROGEN IN LOW-DENSITY FLOW, by James M. Benson. U. S. National Advisory Committee for Aeronautics. Feb 1951. 58p photos, drawings, diagrs, graph, tables Mi $2.75, Ph $7.50. PB 102900

An investigation of the physical properties of active nitrogen in low-density flow indicates that active nitrogen may be used for flow visualization without introducing excessive disturbances in the stream. Quantitative measurements of density in the flow may be obtained from certain restricted regions of the spectrum of the afterglow. The results are shown to disagree with Mitra's theory of the afterglow. The results appear to require that active nitrogen contain metastable molecules. Methods are described for the use of active nitrogen in shock tubes. NACA TN 2293.

PHOTOCHEMISTRY OF RUTILE, by W. A. Weyl and T. Forland. Pennsylvania State College. School of Mineral Industries. Aug 1949. 43p diagrs, table Mi $2.50, Ph $6.25. PB 102832

The color, phototropy and photoelectric oxidation phenomena of rutile are discussed on the basis of crystal chemistry of defect structures. Foreign atoms, especially cations with a valency higher or lower than that of Ti^{4+} as well as the surface, represent the defects of the crystals. An explanation is presented for the strong coloring effect of traces of Cr^{3+}, Fe^{3+}, Cb^{5+}, W^{6+} and others in rutile. The presence of traces of iron causes phototropy, i.e., the TiO_2 darkens when exposed to light and the tan to brown color fades in the dark. A sensitive test for atomic oxygen was developed which detects photooxidation within very short exposure times. This test is based on the oxidation of 4, 4', 4" hexamethyl triamino triphenyl methane to the carbinol, the base of the intensely colored crystal violet. Contract no. N6 onr-269. Task order 11 (NR081-060. Invited lecture, Titanium symposium, American Chemical Society, Atlantic City, N. J., Sept. 1949. PSC SMI TR 3.

REFRACTORY SILICA RESOURCES OF JAPAN, by Hideshiro Hasegawa. Supreme Commander for the Allied Powers. Natural Resources Section. Feb 1951. 31p maps, tables Mi $2.25, Ph $5.00. PB 103201

1. Silica, Refractory - Japan 2. SCAP NRS PS 44.

RESEARCH ON SURFACE PROPERTIES OF FINE PARTICLES, by J. M. Dallavalle and Clyde Orr, Jr. Georgia Institute of Technology. State Engineering Experiment Station, Atlanta, Ga. Oct 1950. 14p graphs, tables Mi $1.75, Ph $2.50. PB 102813

Measurements of the surface area of a variety of materials were made by microscopic, sedimentation, turbidity, permeability, and gas adsorption methods. The results, when compared and evaluated, clearly show that adsorption methods give greater surface values than other methods. A mass of information in the literature and in other reports and articles shows that gas adsorption methods give the true surface

area. The conclusion is, therefore, that all other methods mentioned above, except adsorption, yield a fictitious diameter for irregular particles. Project 143-68, Quarterly report no. 6 on Contract no. W36-039-sc-38258. Department of the Army Project: 3-99-15-022. Signal Corps Project: 32-152B-0.

VARIATION OF WORK FUNCTION OF SILICON WITH TEMPERATURE, by B. J. Rothlein. Pennsylvania. University. Sep 1949. 25p diagrs, graphs Mi $2.00, Ph $3.75. PB 103259

No change in work function of silicon is observed as the sample is heated from its extrinsic temperature range to its intrinsic range. Theory predicts a change in electro-chemical potential with temperature; it is assumed that surface states whose energies lie within the "forbidden band" exist on the surface and that these states prevent any observed change in work function. In order to measure the expected change in work function a modified Kelvin method was used. A beam of electrons were passed between a reference plate and the silicon sample which was electrically connected to each other. A change in work function as the sample is heated would cause a change in the field between the two plates. This change in the electric field would produce a deflection in the electron beam. The apparatus is capable of measuring a change in work function of .05 volts. Within this limit no change in work function with temperature was observed. Contract Nobsr-42487. Technical report no. 15.

VERSUCHE ZUM PROBLEM DER RÖSTUNG UNTER VERWENDUNG VON REINEM SAUERSTOFF (USE OF OXYGEN FOR ROASTING OF PYRITE OR ZINC BLENDS), by Dipl. Ing. Sinigoy. Metallgesellschaft A. G., Frankfort, Ger. Sep 1941. 34f drawing, graphs, tables (Text in German) Mi $2.25, Enl Pr $6.25. PB 103090

1. Pyrites - Roasting - Germany 2. Zincblende - Roasting - Germany 3. Oxygen - Use in roasting processes - Germany 4. BIOS FR 335 LD 5. Micro BIOS HEC 12252 6. Micro BIOS FD 253/48, Frames 559-592.

Abstract available as PB 103090s. 1p. Mi $1.25, Ph $1.25. Report 1878. Listed in BIOS FR 335.

PHOTOGRAPHIC AND OPTICAL GOODS

COMPOSITION OF VARIOUS PHOTOGRAPHIC DEVELOPERS. Hauff A. G., Stuttgart, Ger. n.d. 3f (Text in German) Mi $1.25, Enl Pr $1.50. PB 103297

1. Developers (Photography) - Formulas - Germany 2. Micro BIOS FD 5164/47, Frames 1-3.

Abstract available as PB 103297s. 1p. Mi $1.25, Ph $1.25.

REPORT OF THE COMMITTEE ON CELLULOID STORAGE. Gt. Brit. Secretary of State for the Home Dept. Committee on Celluloid Storage. Apr 1950. 32p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.30. PB 103216

1. Celluloid - Storage - Gt. Brit. 2. Nitrocellulose - Storage - Gt. Brit. 3. Films (Photography) - Storage - Gt. Brit.

J. I. Wall, Chairman. Cmd. 7929.

PHYSICS

General

ANWENDUNG DER RECHNERISCHEN BEHANDLUNG VON STOSSFRONT UND WIRBELSTRÖMUNG AUF EINEM AUS KEGEL UND ZYLINDER ZUSAMMENGESETZTEN KÖRPER (APPLICATION OF THE COMPUTATIONAL TREATMENT OF SHOCK WAVES AND VORTEX FLOW TO A BODY COMPOSED OF A CONE AND CYLINDER), by W. Kai. 1944. 65p graphs, tables (Text in German and English) Mi $3.00, Ph $8.75. PB 103028

1, Aerodynamics - Research - Germany 2. Shock waves - Computation - Germany 3. Vortex motion - Theory - Germany 4. Mach number - Effect - Germany 5. AAF T-2 T/1207 6. GDAM A-9-T-16.

Translated from Peenemunde archiv 44/14 by Brown University under Contract no. W33-038-ac-15004 (16351).

AUSBREITUNG EINES PRESSLUFTSTREHLES BEI FAHRTWIND (OUTFLOW OF A JET OF COMPRESSED AIR INTO MOVING AIR), by M. Schaefer. Aug 1944. 39f diagrs, tables (Text in German and English) Mi $2.25, Enl Pr $6.25. PB 102966

1. Jet propulsion units - Germany 2. Nozzles, Jet - Germany 3. Shock waves - Germany 4. Dresden. Technische Hochschule 5. Brown University. Graduate Division of applied Mathematics 6. AAF T-2 T/1204 7. GDAM A-9-T-15.

Translated from Peenemunde archiv 44/13 under Contract W-33-038-ac-15004 (16351) with Brown University.

FUNDAMENTAL INVESTIGATION OF NOISE IN PIPING SYSTEMS (LIQUID) REPORT NO. 2: EFFECT OF VARIOUS HANGER LINERS ON THE SOUND LEVELS IN WATER-FIELD PIPE AND ON THE SOUND TRANSMITTED TO THE MOUNTING STRUCTURE, by D. B. Calloway and H. C. Hardy. Armour Research Foundation, Chicago, Illinois. Jun 1949. 63p photos, diagrs, graphs, tables Mi $3.00, Ph $8.75. PB 102863

Studies were made to develop techniques and instrumentation by means of which the complex pipe-wall vibration of a practical water-filled piping system can be studied, to investigate the effect of various hanger liners on the sound levels in a water-filled pipe and to investigate the transmission of sound energy to the supporting structure through hangers with various liners. A useful method for measuring the vibration characteristics of a practical piping system was devised, based on the use of a thermal noise source for introducing energy into the system and octave-band filters for analyzing the vibrations excited. The effect of hanger spacing and of lead and rubber hanger liners on pipe-wall vibrations was studied. Measurements were made on the transmission of noise energy through unlined, lead-lined, and rubber-lined hangers to the supporting structure. Contract NObs 47732 (formerly N6onr-274 Task Order IV). Project no. 90-620A.

FREQUENCY RESPONSE OF LINEAR SYSTEMS FROM TRANSIENT DATA, by Melvin E. Laverne and Aaron S. Boksenbom. U. S. National Advisory Committee for Aeronautics. 1950. 15p graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 102801

Methods are presented that use general correlative time-response input and output data for a linear system to determine the frequency-response function of that system. These methods give an exact description of any linear system for which such transient data are available. Examples are shown of application of a method to both an underdamped and a critically damped exact second-order system, and to an exact first-order system with and without dead time. Experimental data for a turbine-propeller engine showing the response of engine speed to change in propeller-blade angle are presented and analyzed. NACA Report 977.

INFLUENCE OF VARIABLE SPECIFIC HEATS ON THE HIGH-SPEED FLOW OF AIR, by J. Kestin. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1950. 24p diagrs, graphs (1 fold), tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90. PB 103125

1. Heat - Transference - Aerodynamics - Gt. Brit. 2. Flow, Compressible - Theory - Gt. Brit. 3. Gases - Flow measurements - Gt. Brit. 4. Flow, Fluid - Compressibility - Gt. Brit. 5. Mach number - Effect - Gt. Brit. 6. ARC CP 33.

S.O. Code no. 23-9006-33.

RUBBER AND RUBBER PRODUCTS

BUTADIEN AUS BUTYLENGLYKOLDIACETATEN (BUTADIENE FROM DIACETATES OF BUTYLENE GLYCOL), by Dr. Niemann. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. Jun 1940. 8f drawing (Text in German) Mi $1.25, Enl Pr $2.50. PB 103313

1. Butadiene - Production - Germany 2. 1,3-Butanediol - Esters - Germany 3. Furnaces, Butadiene - Germany 4. KAUTEKO (Anwendungstechnische Kommission für Kautschuk) 5. Micro BIOS FD 1297/48, Frames 1-8.

Abstract available as PB 103313s. 1p. Mi $1.25, Ph $1.25. Paper read at Scientific Rubber Conference (Kauko)June 15, 1940.

INVESTIGATIONS IN THE FIELD OF LATICES AND CENTRIFUGAL CONCENTRATES. Metallgesellschaft A. G., Frankfort, Ger. 1936-1938. 100f tables (Text in German) Mi $4.25, Enl Pr $13.75. PB 25548s15

1. Revertex (Trade name) 2. OE 201 (Separator) 3. MA 5001 (Separator) 4. Rubber, Latex - Analysis - Germany 5. Rubber, Latex - Separation - Germany 6. Separators - Design - Germany 7. BIOS FR 335 LD 8. Micro BIOS HEC 12081 9. Micro BIOS HEC 12084 10. Micro BIOS HEC 12090 11. Micro BIOS FD 4875/47, Frames 1-99.

Abstract available as PB 25548s16. 2p. Mi $1.25, Ph $1.25. Listed in BIOS FR 335 p. 190. Contents: no. 1683. Analytical investigations in the field of latex, pt. II, by I. Schultz. - no. 1686. On centrifuging of latex in the plate separator, pt. I, by von Girsewald - no. 1692. On centrifugal concentrates, pt. I-II, by Dr. H. Wick and Dr. Gf. von Schweinitz.

STRUCTURAL ENGINEERING

AIRCRAFT MATERIAL SPECIFICATION: APPROVAL PROCEDURE FOR PROPRIETARY MATERIALS AND PROCESSES. Gt. Brit. Ministry of Supply. Aug 1950. 7p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.30. PB 103059

1. Aircraft - Materials - Specifications - Gt. Brit. 2. MS DTD MS 900C.

Superseding D.T.D. 900B (PB 100045). For D.T.D. 900 and D.T.D. 900 revised see PB 92917 and PB 92917r.

TRANSPORTATION EQUIPMENT

Aeronautics

Aircraft

AIR BAGS AS FLEXIBLE SUPPORTS IN GROUND RESONANCE TESTING OF AIRCRAFT, by R. L. Moffat and D. R. Gaukroger. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Sep 1949. 14p drawings, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90. PB 103131

Stiffness and natural frequency tests have been made on an air bag designed for the ground resonance testing of a medium size aircraft. Results are compared with those obtained from an existing theory and from a new theory put forward in this report. Agreement between the experimental results and the theory of this report is very good. The results show that the present design of air bags does not provide the low frequency anticipated. Technical note no. Structures 47. Cover date is 1950. S.O. Code no. 23-9006-32. ARC CP 32.

APPLICATIONS OF VON KARMAN'S INTEGRAL METHOD IN SUPERSONIC WING THEORY, by Chieh-Chien Chang. U. S. National Advisory Committee for Aeronautics. Mar 1951. 71p diagrs, graphs, tables Mi $3.50, Ph $10.00. PB 103180

Von Kármán's Fourier integral method in supersonic wing theory, derived directly from the basic concepts of the harmonic source and doublet, is applied to investigate the general solution of the wave drag of a tapered swept wing with a symmetrical diamond airfoil profile, covering various geometrical arrangements of the plan form. The theory is also applied to find the downwash distribution in the plane of the wing on which the pressure distribution is preassigned. A number of examples are given. NACA TN 2317.

BLOCKAGE CORRECTIONS FOR THREE-DIMENSIONAL-FLOW CLOSED-THROAT WIND TUNNELS, WITH CONSIDERATION OF THE EFFECT OF COMPRESSIBILITY, by John G. Herriot. U. S. National Advisory Committee for Aeronautics. 1950. 16p

diagrs, graphs, tables Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.10. PB 103113

Theoretical blockage corrections are presented for a body of revolution and for a three-dimensional unswept wing in a circular or rectangular wind tunnel. The theory takes account of the effects of the wake and of the compressibility of the fluid, and is based on the assumption that the dimensions of the model are small in comparison with those of the tunnel throat. Formulas are given for correcting a number of the quantities, such as dynamic pressure and Mach number, measured in wind-tunnel tests. The report presents a summary and unification of the existing literature on the subject. NACA Report 995.

COMPARATIVE DRAG MEASUREMENTS AT TRANSONIC SPEEDS OF RECTANGULAR AND SWEPTBACK NACA 65-009 AIRFOILS MOUNTED ON A FREELY FALLING BODY, by Charles W. Mathews and Jim Rogers Thompson. U. S. National Advisory Committee for Aeronautics. Aug 1945. 10p photos, diagrs, graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 103182

Directly comparable drag measurements have been made of an airfoil with a conventional rectangular plan form and an airfoil with a sweptback plan form mounted on freely falling bodies. Both airfoils had NACA 65-009 sections and were identical in span, frontal area, and chord perpendicular to the leading edge. The sweptback plan form incorporated a sweepback angle of 45°. The data obtained have been used to establish the relation between the airfoil drag coefficients and the free-stream Mach number over a range of Mach numbers from 0.90 to 1.27. Cover date is 1950. NACA Report 988.

DETERMINATION OF THE STATIC STABILITY OF SEAPLANES, by K. M. Tomaszewski. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1946. 73p drawings (2 fold), graphs, tables (7 fold) Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.90. PB 103128

This report describes graphical methods for the determination of the water performance of seaplane hulls and floats when at rest and at low taxying speeds. The methods are applied to the estimation of water lines with and without the slow and rapid application of external thrust and torque (roll) for zero wind and wave conditions. A detailed example is given for the case of a small twin float aeaplane. The method can be used for the determination of the effect of any known statically or dynamically applied forces or moments, and in any known sea and wind conditions. Cover date is 1950. Report no. Aero. 2137. S.O. Code no. 23-9006-14. ARC CP 14.

EFFECT OF FLANGE STIFFNESS ON THE STRESSES IN A PLATE WEB SPAR UNDER SHEAR, by D.M.A. Leggett and H. G. Hopkins. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Nov 1941. 12p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 103142

1. Wings - Stresses - Gt. Brit. 2. Flanges - Stresses - Gt. Brit. 3. ARC RM 2434.

Cover date is 1950. S.O. Code no. 23-24-34.

EFFECTS OF MASS DISTRIBUTIONS ON THE LOW-SPEED DYNAMIC LATERAL STABILITY AND CONTROL CHARACTERISTICS OF A MODEL WITH A 45° SWEPTBACK WING, by Donald E. Hewes. U. S. National Advisory Committee for Aeronautics. Mar 1951. 27p diagr, tables, drawings, graphs Mi $2.00, Ph $3.75. PB 103106

The trends in lateral stability and control produced by variations of the mass distribution were determined for a model with a 45° sweptback wing. Calculations were made to correlate the trends determined by theory with those determined from tests of a free-flying dynamic model in the Langley free-flight tunnel. NACA TN 2313.

FLUTTER OF A UNIFORM WING WITH AN ARBITRARILY PLACED MASS ACCORDING TO A DIFFERENTIAL-EQUATION ANALYSIS AND A COMPARISON WITH EXPERIMENT, by Harry L. Runyan and Charles E. Watkins. U. S. National Advisory Committee for Aeronautics. Nov 1948. 20p diagr, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.20. PB 103132

A method is presented for the calculation of the flutter speed of a uniform wing carrying an arbitrarily placed concentrated mass. The method, involves the solution of the differential equations of motion of the wing at flutter speed and therefore does not require the assumption of specific normal modes of vibration. The order of the flutter determinant to be solved by this method depends upon the order of the system of differential equations and not upon the number of modes of vibration involved. The differential equations are solved by operational methods, and a brief discussion of operational methods as applied to boundary-value problems is included in one of two appendixes. A comparison is made with experiment for a wing with a large eccentrically mounted weight and good agreement is obtained. Sample calculations are presented to illustrate the method; and curves of amplitudes of displacement, torque, and shear for a particular case are compared with corresponding curves computed from the first uncoupled normal modes. Cover date is 1950. NACA Report 966.

FULL-SCALE-TUNNEL INVESTIGATION OF THE STATIC-THRUST PERFORMANCE OF A COAXIAL HELICOPTER ROTOR, by Robert D. Harrington. U. S. National Advisory Committee for Aeronautics. Mar 1951. 20p photos, graphs Mi $1.75, Ph $2.50. PB 103138

Static-thrust-performance measurements of a coaxial- and a single-rotor helicopter configuration with blades tapered both in thickness ratio and plan form are presented. A comparison is also made of the measured performance with the performance predicted by rotor hovering theory. NACA TN 2318.

HARVARD 2 STANDARD AND ARMAMENT TRAINER. PART II: ARMAMENT INSTALLATIONS, by G. T. Johnson and J. G. Begg. Canada. Royal Canadian Air Force. Experimental and Proving Establishment, Rockcliffe, Canada. Jun 1950. 31p photos Mi $2.25, Ph $5.00. PB 103079

1. Trainers (Aviation) - Canada 2. Harvard 2 (Trainer) 3. Armament, Airplane - Testing equipment - Canada 4. Airplanes - Armament - Canada 5. RCAF EPE 943.

RCAF Development report: Final D154-2. For Part I see PB 102805; for Part IV see PB 101196. Part III was issued as RCAF EPE 944. Cover date is Jan 1951.

HIGH ALTITUDE BAILOUTS, by Vincent Mazza, Randall W. Briggs, C. E. Carroll and Richard V. Wheeler. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Sep 1950. 44p photos, drawing, tables Mi $2.50, Ph $6.25. PB 102997

1. B-17 (Airplane) 2. Parachute jumping, High altitude - Physiological effect 3. Parachutes - Drop tests 4. Seats, Airplane - Ejector 5. AAF TSEAA 695-66M.

Memorandum report MCREXD-695-66M.

INVESTIGATION AT LOW SPEEDS OF THE EFFECT OF ASPECT RATIO AND SWEEP ON ROLLING STABILITY DERIVATIVES OF UNTAPERED WINGS, by Alex Goodman and Lewis R. Fisher. U. S. National Advisory Committee for Aeronautics. 1950. 14p photos, diagrs, graphs, table Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 103287

A low-scale wind-tunnel investigation was conducted in rolling flow to determine the effects of aspect ratio and sweep (when varied independently) on the rolling stability derivatives for a series of untapered wings. The rolling-flow equipment of the Langley stability tunnel was used for the tests. The results of the tests indicate that, when the aspect ratio is held constant, an increase in the sweepback angle causes a significant reduction in the damping in roll at low life coefficients for only the higher aspect ratios tested. The date of the present investigation have been used to develop a method for accounting for the effects of the drag on the yawing moment due to rolling throughout the lift range. NACA Report 968.

KORREKTURFAKTOREN FÜR WINDKANÄLE ELLIPTISCHEN QUERSCHNITTS MIT TEILWEISE OFFENER UND TEILWEISE GESCHLOSSENER MESS-STRECKE. (CORRECTION FACTORS FOR WIND TUNNELS OF ELLIPTIC SECTION WITH PARTLY OPEN AND PARTLY CLOSED TEST SECTION), by E. Riegels. Mar 1951. 18p diagrs, graphs Mi $1.75, Ph $2.50. PB 103139

Jet-boundary corrections for partly open and partly closed elliptical wind tunnels for the cases of one and two solid wall segments are presented. Also presented are the combinations of model span and extent of the solid portion of the tunnel wall for which the average correction factor is zero. Translation from Luftfahrtforschung Bd. 16, Lfg. 1, 1939, p. 26-30. NACA TM 1310.

LINE-VORTEX THEORY FOR CALCULATION OF SUPERSONIC DOWNWASH, by Harold Mirels and Rudolph C. Haefeli. U. S. National Advisory Committee for Aeronautics. Apr 1949. 19p diagrs, graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.20. PB 103288

The perturbation field induced by a line vortex in a supersonic stream and the downwash behind a supersonic lifting surface are examined to establish approximate methods for determining the downwash behind supersonic wings. Lifting-line methods are presented for calculating supersonic downwash. A bent lifting-line method is proposed for computing the downwash field behind swept wings. When applied to triangular wings with subsonic leading edges, this method gives results that, in general, are in good agreement with the exact linearized solution. An unbent lifting-line method (horseshoe-vortex system) is proposed for unswept wings. This method is applied to determine the downwash behind rectangular wings with aspect ratios of 2 and 4. Excellent agreement with exact linearized theory is obtained for both aspect ratios by placing the lifting line at the 1/2-chord point. The use of lifting lines therefore appears promising for obtaining estimates of the downwash behind supersonic wings. Cover date is 1950. NACA Report 983.

LOW SPEED PERFORMANCE OF RELATED AEROFOILS IN CASCADES, by A.D.S. Carter. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Sep 1949. 46p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90. PB 103124

This report contains a general analysis of some test results on compressor and turbine cascades. It is shown that both these types of cascades can be treated in a similar manner, and data is given from which the performance of any cascade of the related series of aerofoils considered can easily be calculated. An attempt has been made to explain variations in behaviour of cascades, and, appreciating the factors involved, a fair idea of the performance of other aerofoil sections can be obtained. Report no. R. 55. Cover date is 1950. S.O. Code no. 23-9006-29. ARC CP 29.

METHOD FOR THE DETERMINATION OF THE SPANWISE LOAD DISTRIBUTION OF A FLEXIBLE SWEPT WING AT SUBSONIC SPEEDS, by Richard B. Skoog and Harvey H. Brown. U. S. National Advisory Committee for Aeronautics. Mar 1951. 46p diagrs, graphs, tables Mi $2.50, Ph $6.25. PB 103110

A method is presented for the determination of the spanwise load distribution of a flexible swept wing at subsonic speeds. The method is based on a relaxation approach utilizing aerodynamic loadings obtained from previously published work (NACA Rep. 921, 1948) based on Weissinger's simplified lifting-surface theory together with simple beam theory. The solution is expressed in a convenient form such that the amount of detailed computing involved when extensive aeroelastic calculations are desired is reduced to that for a single set of flight conditions. Sample computing forms and a numerical example are presented to illustrate the method. NACA TN 2222.

NOTE ON WING-NACELLE-AIRSCREW INTERFERENCE, by E. Ower, R. Warden and R. C. Pankhurst. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1940. 6p diagr, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.35. PB 103143

1. Interference, Propeller - Gt. Brit. 2. Interference, Nacelle - Gt. Brit. 3. Wings - Interference - Gt. Brit. 4. Gt. Brit. Royal Aircraft Establishment,

Farborough, England 5. Gt. Brit. National Physical Laboratory 6. ARC RM 2439.
Cover date is 1950. S.O. Code no. 23-2439.

REVERSIBILITY THEOREM FOR THIN AIRFOILS IN SUBSONIC AND SUPERSONIC FLOW, by Clinton E. Brown. U. S. National Advisory Committee for Aeronautics. Jun 1949. 6p Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 103289
A method introduced by Munk is extended to prove that the lift-curve slope of thin wings in either subsonic or supersonic flow is the same when the direction of flight of the wing is reversed. It is also shown that the wing reversal does not change the thickness drag, damping-in-roll parameter C_{l_p}, or the damping-in-pitch parameter C_{m_q}. Cover date is 1950. NACA Report 986.

SPAR DEPTH AND WEIGHT, by W. Tye and R. G. Thorne. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Dec 1941. 3p graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.25. PB 103147
1. Wing spars - Depth 2. Wing spars - Weight 3. ARC RM 2569.
Cover date is 1950. S.O. Code no. 23-2569.

STAND UND ENTWICKLUNG DER FLATTERBERECHNUNG (STATE AND DEVELOPMENT OF FLUTTER CALCULATION), by A. Teichmann. Mar 1951. 26p diagrs, graphs Mi $2.00, Ph $3.75. PB 103179
This report discusses the need for considering a wide variation in certain of the basic flutter parameters in conducting a flutter analysis. Conclusions are drawn stating that design charts or simple rules may be misleading. Due to inherent difficulties, dynamic model testing may also yield misleading results. The general flutter equations and various methods of solution are discussed. Of particular interest, curves are presented showing computational effort plotted against a number of degrees of freedom used in a flutter analysis. Translation from Lilienthal Gesellschaft für Luftfahrtforschung, Bericht 135, p. 11-20, 1941. NACA TM 1297.

STATUS OF THE PILOT'S PERSONAL LEADS QUICK DISCONNECT ASSEMBLY, PROJECT 660-158, by Robert L. King. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Dec 1950. 4p Mi $1.25, Ph $1.25. PB 102996
1. Pilots, Air - Equipment 2. Seats, Airplane - Ejector 3. Parachutes - Release devices 4. Aerotec Corporation, Greenwich, Conn. 5. AAF TSEAA MR 660-120-I.
Memorandum report MCREXD-660-120-I.

SUGGESTED METHOD OF INCREASING THE DAMPING OF AIRCRAFT STRUCTURES, by D.H.D. Cooper. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Aug 1946. 13p photos, diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 103141
The object of this work is to find means of increasing damping in the joints of a structure, similar to a riveted structure, by the use of plastic inserts in the joints. Information on the effect of pressure-cabin sealing and the adoption of spot-welded or Redux welding construction is also given. This report discusses the operation of an insert and the properties called for in service, and recommends four suitable materials for further tests. Cover date is 1950. S.O. Code no. 23-2398. ARC RM 2398.

WIND-TUNNEL INVESTIGATION AT LOW SPEED OF LATERAL CONTROL CHARACTERISTICS OF AN UNTAPERED 45° SWEPTBACK SEMISPAN WING OF ASPECT RATIO 1.59 EQUIPPED WITH VARIOUS 25-PERCENT-CHORD PLAIN AILERONS, by Harold S. Johnson and John R. Hagerman. U. S. National Advisory Committee for Aeronautics. Mar 1951. 29p photo, diagr, graphs, tables Mi $2.00, Ph $3.75. PB 103104
A wind-tunnel investigation at low speed was made to determine the lateral control characteristics of a 45° sweptback untapered semispan wing of aspect ratio 1.59 equipped with various 25-percent-chord plain unsealed ailerons. Variations of the lateral-control data with aileron span and spanwise location were determined through a large aileron-deflection range for various angles of attack up to about the angle of maximum lift. NACA TN 2316.

WIND TUNNEL TESTS ON A ONE-TWELFTH SCALE MODEL OF A TWIN-ENGINED MILITARY TRANSPORT (AIRSPEED C13/45 AYRSHIRE), by R. Warden. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jan 1949. 45p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90. PB 103127
This report gives the results of wind tunnel tests on a one-twelfth scale model of the A.S. 60 - a high wing transport machine having twin engines located in large underslung nacelles. The wing body interference and longitudinal stability were measured. The stability tests included measurements with propellers running. The results indicate a noticeable fuselage interference effect on the tail and that slipstream has an appreciable destabilising effect under climb conditions. A comparison of tests made on pitching moment at the R.A.E., and N.P.L., is included. Cover date is 1950. S.O. Code no. 23-9006-17. ARC CP 17.

WIND TUNNEL TESTS ON LATERAL CONTROL WITH HIGH-LIFT FLAPS MADE ON THE S.24/37, by R. Hills, R.E.W. Harland and R. H. Whitby. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Oct 1941. 21p diagrs, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00. PB 103144
1. S.24/37 (Airplane model) 2. Control surfaces, Lateral - Wind tunnel tests - Gt. Brit. 3. Wind tunnel tests - Gt. Brit. 4. Flaps, Aircraft - High lift - Gt. Brit. 5. ARC RM 2452.
Cover date is 1950. S.O. Code 23-2452.

Engines and Propellers

CALIBRATION OF A 14-FOOT, 6-INCH DIAMETER, 4-BLADE, 60-SHAFT, GARDNER WOOD TEST CLUB DESIGN NO. 2103, FOR POWER RATINGS OF THE R-2160, V-3420, AND R-3350 ENGINES, by Lyle H.

Corsaw. U. S. Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio. Whirl test no. 1576. May 1942. 17f photos, graphs, tables Mi $1.75, Enl Pr $3.75. PB 103337

1. Propellers - Calibration 2. Propellers - Performance 3. Propellers - Tests 4. Propellers, Club 5. R-2160 (Engine) 6. V-3420 (Engine) 7. R-3350 (Engine) 8. AAF TR 4769.

CRITICHESKIE SKOROSTI SUPERTSENTRIFUG (CRITICAL VELOCITIES OF ULTRACENTRIFUGES), by V. I. Skolov. Mar 1951, 11p diagrs Mi $1.75, Ph $2.50. PB 103112

The characteristics of the passage through the critical velocities of ultracentrifuges are discussed and the corresponding practical conclusions are presented in this paper. Translated from Zhurnal tekhnicheskoi fiziki (U.S.S.R.) Vol. XVI, no. 4, 1946. NACA TM 1272.

DETERMINATION OF THE FIXED ROOT FREQUENCIES OF PROPELLER BLADES USING SCALE MODELS AND THE RESULTS COMPARED WITH CALCULATIONS, by G. A. Luck and W. Lowes. Gt. Brit. Ministry of Aupply. Aeronautical Research Council. Nov 1945. 10p photos, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 103140

Model blades of known propeller designs, one one-tenth and the other a one-fifth scale, were bowed to investigate their fixed-root natural frequencies and modes of vibration. Similar experiments on a cylindrical bar having the same root form were carried out to investigate the root fixation. Calculation of the lower natural frequencies of the blades was carried out by the method given in R. & M. 2011 (1942). Very good agreement between the experimental and calculated frequencies was obtained. Cover date is 1950. S.O. Code no. 23-2391. ARC RM 2391.

MEASUREMENT OF THRUST AND TORQUE GRADING ON HIGH-PITCH MODEL AIRSCREWS, by C.N.H. Lock, H. Bateman and H. L. Nixon. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Aug 1939. 29p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.25. PB 103145

1. Torque, Propeller - Measurements - Gt. Brit. 2. Propellers - Thrust - Measurements - Gt. Brit. 3. Propellers, High-pitch - Gt. Brit. 4. ARC RM 2477.

Adaptation of technique of R&M 992. Cover date is 1950. S.O. Code no. 23-2477.

TORSIONAL VIBRATION INVESTIGATIONS ON THE MUSKETEER ENGINE, by E. Downham, Winifred Davidson and M. O. Wolfe. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1949. 30p diagrs, graphs (5 fold), tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 103130

The torsional vibrational characteristics of the crankshaft of the Blackburn Musketeer Engine are investigated by experimental and theoretical analyses. Good agreement between theory and experiment is obtained for values of critical frequencies but not for stresses due to inadequate knowledge of the damping factors. The stresses are not considered to be sufficiently high to explain a crankshaft failure occurring in the course of development tests. Report no. Structures 43. Cover date is 1951. S.O. Code no. 23-9006-34. ARC CP 34.

Aerodynamics

ANALYTICAL AND EXPERIMENTAL INVESTIGATION OF THE SKIN FRICTION OF THE TURBULENT BOUNDARY LAYER ON A FLAT PLATE AT SUPERSONIC SPEEDS, by Morris W. Rubesin, Randall C. Maydew, and Steven A. Varga. U. S. National Advisory Committee for Aeronautics. Feb 1951. 38p diagrs, graphs, table Mi $2.25, Ph $5.00. PB 102944

Average skin-friction coefficients have been measured on an insulated flat plate in turbulent flow at a Mach number of 2.5 for a Reynolds number range of $2.1 \times 10^6 < Re < 6.2 \times 10^6$ and compared with several known existing analyses. The postulates assumed for developing these analyses and the effect of some of the postulates on the average skin-friction coefficient have been shown. It was found that the analysis corresponding more closely to the experimental data for average skin-friction coefficient in the range $0 < M < 2.5$ was an interpolation formula obtained from the numerical integration of Frankl and Voishel's original analysis. NACA TN 2305.

FURTHER EXPERIMENTS ON THE FLOW AND HEAT TRANSFER IN A HEATED TURBULENT AIR JET, by Stanley Corrsin and Mahinder S. Uberoi. U. S. National Advisory Committee for Aeronautics. Aug 1947. 20p photos, diagr, graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.20. PB 103183

1. Air flow, Turbulent - Thermodynamics 2. Air flow, Turbulent - Velocity 3. Air flow - Theory 4. California Institute of Technology, Pasadena, California 5. NACA Report no. 998.

Cover date is 1950.

PERFORMANCE OF EXPEDITOR 2 AIRCRAFT. PART I: OPERATIONAL REPORT, by M. T. Friedl and E. Miall. Canada. Royal Canadian Air Force. Experimental and Proving Establishment, Rockcliffe, Canada. Sep 1950. 40p graphs, tables Mi $2.25, Ph $5.00. PB 103080

1. Airplanes - Aerodynamics - Canada 2. Airplanes - Performance - Canada 3. Expeditor 2 (Airplane) 4. RCAF EPE 965.

RCAF Development report: Final D104/1-3. For Part II see PB 102806. Cover date is Jan 1951.

PRELIMINARY MEASUREMENTS OF THE AERODYNAMIC DAMPING IN PITCH OF A 12 FT DIAMETER HELICOPTER ROTOR, by C. M. Britland and R. A. Fail. Gt. Brit. Ministry of Supply. Aeronautical Research Council. May 1950. 12p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.30. PB 103129

Brief measurements of the damping characteristics of a rotor in pitching oscillation were made, primarily to verify the simple technique proposed for a full research programme on this subject. The results obtained have not been fully analysed or compared with theory, but the technique employed ap-

pears to be satisfactory. Technical Note no. Aero 2049. S.O. Code no. 23-9006-22. ARC CP 22.

Land Transportation

VIBRATION RECORDING AND ANALYSIS USED IN THE ASSOCIATION OF AMERICAN RAILROADS TEST TRAIN, CLINTON, ILLINOIS, 1950, by Frank K. Priebe, Gunter K. Guttwein, Joseph J. Oliveri, Norman Nisenoff. U. S. Signal Corps Engineering Laboratories, Fort Monmouth, N. J. Oct 1950. 71p photos, drawings, graphs, tables Mi $3.50, Ph $10.00. PB 102816

A new method of recording transportation shock and vibration on magnetic tape and reproducing and analyzing these records in the laboratory is described. The analysis method gives a record which gives the average amplitude as a function of time for various frequency ranges. It is considered that this type of interpretation is more significant for the designer of protective equipment and electronic equipment since the average amplitudes, as a function of time, are given. These average values represent the energy level contained in the various frequency bands; the results are compared with other methods which are usually employed in recording shock and vibration phenomena. Signal Corps Proj. no. 2232A. Dept. of the Army Proj. no. 3-54-03-021. By Special projects group, Components and Materials Branch. SCEL TM M-1321.

Marine Transportation

SCHLEPPLEISTUNG VON U-BOOTEN BEI UNTERWASSERFAHRT (TOWING RESISTANCE OF SUBMARINE IN UNDERWATER PERFORMANCE), by Sgd. Hickscher. Nov 1950. 18p graphs Mi $1.75, Ph $2.50. PB 102935

1. Submarines - Towing 2. Hamburgische Schiffbau-Versuchsanstalt G.m.b.H., Hamburg, Ger. 3. NAVSHIPS T395.

Hamburgische Schiffbau-Versuchsanstalt. Bericht 925. U. S. Bureau of Ships. Translation no. 395.

MISCELLANEOUS

ANWENDUNG VON STATISCHEN VERFAHREN ZUR REGELUNG DER MASCHINENBAUFERTIGUNG UND ZUR PRODUKTIONSKONTROLLE (APPLICATION OF MATHEMATICAL STATISTICS, STATISTICAL ANALYSIS, AND SAMPLE RESEARCH IN THE ENGINEERING INDUSTRY). Deutscher Normenausschuss E. V. Fachkommission Statistische Verfahren. 1947. 208f tables (Text in German) Mi $7.50, Enl Pr $27.50. PB 103303

1. Statistical methods - Germany 2. Efficiency, Industrial - Germany 3. Engineering - Tables - Specifications - Germany 4. Micro BIOS FD 2901/48, Frames 1-198.

Abstract available as PB 103303s. 2p. Mi $1.25, Ph $1.25.

BALANCE ASSEMBLY FOR PARACHUTIST LIFE PRESERVER CYLINDER, by A. B. Hearld. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Aug 1950. 9p photos Mi $1.25, Ph $1.25. PB 103000

1. Vests, Life - Testing equipment - Scales 2. Cylinders, Carbon dioxide - Weighing 3. Balances, Two ounce 4. AAF TSEAA MR 670-24-D.

Memorandum report MCREXD 670-24-D.

COLONIAL RESEARCH 1949-50: REPORTS OF THE COLONIAL RESEARCH COUNCIL, COLONIAL PRODUCTS RESEARCH COUNCIL, COLONIAL SOCIAL SCIENCE RESEARCH COUNCIL, COLONIAL MEDICAL RESEARCH COMMITTEE, COMMITTEE FOR COLONIAL AGRICULTURAL, ANIMAL HEALTH AND FORESTRY RESEARCH, COLONIAL INSECTICIDES, FUNGICIDES AND HERBICIDES COMMITTEE, COLONIAL ECONOMIC RESEARCH COMMITTEE. Gt. Brit. Colonial Office. Oct 1950. 151p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90. PB 102845

1. Research - Gt. Brit. - Colonies 2. Scientific research - Gt. Brit. - Colonies 3. Agricultural research - Gt. Brit. - Colonies 4. Economic research - Gt. Brit. - Colonies.

Cmd. 8063.

FRENCH PROPOSALS PRESENTED TO THE INTERNATIONAL COMMITTEE OF WEIGHTS AND MEASURES, by J. H. Goselin, translated by F. Rizzo. France. National Permanent Scientific Office of Weights and Measures. Nov 1950. 24p Mi $2.00, Ph $3.75. PB 102934

1. Weights and measures - France 2. NAVSHIPS T 390.

U. S. Bureau of Ships. Translation no. 390.

GEOGRAPHICAL DISTRIBUTION OF SOME BASIC TEXAS INDUSTRIES, by J. G. McGuire. Texas. Engineering Experiment Station, College Station, Texas. Feb 1944. 76p maps Available from School of Engineering, Texas Engineering Experiment Station, College Station, Texas PB 102247

1. Industries - Texas.

School of Engineering. Bulletin no. 97. Agricultural and Mechanical College of Texas. Bulletin series 4, v. 15, no. 2.

HOUSEHOLD FURNITURE MANUFACTURING IN TEXAS, by John W. Coffin and William J. Crum. Texas. Engineering Experiment Station, College Station, Texas. Jul 1950. 31p maps, graphs, tables Available from Texas Engineering Experiment Station, College Station, Texas PB 102517

1. Furniture - Manufacture 2. TU EES RR 15.

INDUSTRIAL SALVAGE AND RECOVERY: HANDBOOK COMPILED BY THE NATIONAL INDUSTRIAL SALVAGE AND RECOVERY COUNCIL. Gt. Brit. Board of Trade. National Industrial Salvage and Recovery Council. 1950. 39p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.25. PB 103214

1. Waste - Utilization - Gt. Brit.

S.O. Code no. 51-303.

INTERPRETATION OF CROSSED ORTHOGONALS IN WAVE REFRACTION PHENOMENA, by Willard J. Pierson, Jr. U. S. Beach Erosion Board. Jan 1951. 86p photos, diagrs, maps, graphs Available free from President, Beach Erosion Board, U. S. Corps of Engineers, 520 Little Falls Road, N. W.,

Washington 16, D. C. PB 102907

1. Waves, Ocean - Refraction phenomena 2. New York University, New York, N. Y. 3. ENG BEB TM 21.

Contract no. W49-055-eng 1.

INVESTIGATIONS ON BUILDING FIRES: PART III: RADIATION FROM BUILDING FIRES, by R. C. Bevan and C. T. Webster. Gt. Brit. Dept. of Scientific and Industrial Research. Building Research Station, Watford, England. 1950. 29p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.30. PB 103185

1. Fires - Investigations - Gt. Brit. 2. Fire prevention - Houses - Gt. Brit. 3. Fires - Spreading - Gt. Brit. 4. DSIR NB TP 5.

Part I is PB 110264; Part IV is PB 103264. S. O. Code no. 47-551-5.

JAPANESE ORGANIZATION FOR SCIENTIFIC RESEARCH, by Dr. W. H. Pickering. Interview of Dr. Yagi. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Jul 1946. 3p Mi $1.25, Ph $1.25. PB 103116

1. Scientific research - Japan 2. AAF T-2 ATIR 111.

JAPANESE VILLAGE IN TRANSITION, by Arthur F. Raper and Tamie Tsuchiyama, Herbert Passin, and David L. Sills. Supreme Commander for the Allied Powers. Natural Resources Section. Nov 1950. 271p photos, drawings, maps, graphs, tables Mi $9.00, Ph $35.00. PB 103078

1. Agriculture - Japan 2. Education - Japan 3. Social conditions - Japan 4. SCAP NRS 136.

KIT, AIR EVACUATION UTILITY, PREPARED by Robert L. Summers and T. L. D. Smith. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Nov 1950. 5p photos, drawing Mi $1.25, Ph $1.25. PB 102923

1. Bags, Kit 2. Bags, Medical 3. AAF TSEAA MR 698-40A.

PRESERVATION OF THE COLOR AND SHAPE OF FLOWERS, by Randolph C. Specht. Florida. University. College of Engineering. Engineering and Industrial Experiment Station, Gainesville, Florida. Dec 1950. 30p photos (1 col.), tables Available from Florida Engineering and Industrial Experiment Station, University of Florida, Gainesville, Fla. $1.00. PB 102910

Outline the technique of dehydrating flowers so as to retain their natural shape, texture and color. It also describes methods of preserving the dehydrated flowers by means of a protective film or by mounting in plastic. Bulletin series no. 40. Engineering Progress at the University of Florida, Vol. IV, no. 12, Dec 1950. Color in photo will not reproduce.

PROPOSED METHOD FOR MEASURING THE FILLING POWER OF DOWN AND FEATHERS, by Henry A. Sinski. U. S. Office of the Quartermaster General. Military Planning Division. Research and Development Branch. Feb 1951. 23p photos, diagr, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.75. PB 103037

1. Down, Waterfowl - Tests 2. Feathers - Tests 3. Sleeping bags - Filling materials 4. QMC TSR 48.

RAFT, PNEUMATIC, TYPE C-2A, QUALIFICATION TEST SAMPLE, by Wayne B. Yarcho. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Feb 1951. 5p Mi $1.25, Ph $1.25. PB 102973

1. Rafts, Life - Pneumatic - Tests 2. C-2A (Life raft) 3. New York Rubber Corporation, New York, N. Y. 4. AAF TSEAA MR 670-9-H.

Specification MIL-R-5863.

RAFT, PNEUMATIC, TYPE E-2B, QUALIFICATION TEST SAMPLE, by Wayne B. Yarcho. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Feb 1951. 3p Mi $1.25, Ph $1.25. PB 102974

1. Rafts, Life - Pneumatic - Tests 2. E-2B (Life raft) 3. New York Rubber Corporation, New York, N. Y. 4. AAF TSEAA MR 670-1-Z.

Specification MIL-R-5773.

STATION STORAGE. U. S. Veterans Administration. 1950. 92p diagrs, drawings, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $1.50. PB 103175

1. Storage plants - Planning 2. Supplies - Storage 3. Equipment, Army - Storage 4. Institutions - Storage equipment 5. Hospitals - Storage equipment 6. VA M 11-202.

By direction of the Administrator, O. W. Clark, Deputy Administrator.

STRESS DISTRIBUTION IN A HOMOGENEOUS SOIL, BY C. R. FOSTER AND S. M. FERGUS. PRESENTED AT THE TWENTY-NINTH ANNUAL MEETING 1949. U. S. Highway Research Board. Jan 1951. 39p photos, drawings, graphs Available from Highway Research Board, U. S. National Research Council, 2101 Constitution Ave., N. W., Washington 25, D. C. $.60. PB 103031

1. Soils, Homogeneous - Stress distribution.

Research report no. 12-F. Discussion by D. P. Krynine, F. H. Scrivner and E. S. Barber.

STUDY OF MANAGEMENT ENGINEERING PRACTICE IN TEXAS, by Richard A. Downward, Guy Johnson, Jr. and Donald K. Andrews. Texas. Engineering Experiment Station, College Station, Texas. Feb 1949. 38p diagrs, tables Available from Texas Engineering Experiment Station, College Station, Texas. PB 102516

1. Industrial management 2. Engineering, Industrial 3. TU EES RR 5.

THERMAL INSULATION TESTS OF STANDARD AND EXPERIMENTAL M-49, TYPE 1 SLEEPING BAGS, by John F. Hall, Jr. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Oct 1950. 7p graph, table Mi $1.25, Ph $1.25. PB 103001

1. M-49, Type 1 (Sleeping bag) 2. Sleeping bags - Thermal characteristics 3. Sleeping bags - Filling materials 4. AAF TSEAA MR 696-105Q.

Memorandum report MCREXD 696-105Q. Includes appendix 1.

PATENTS

Chemicals and Allied Products

PATENT APPLICATIONS RELATING TO HYDROCARBON SYNTHESIS, FUELS, PLASTICS. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 1940-1944. 147f diagrs (Text in German) Mi $5.75, Enl Pr $20.00. PB 102215

1. Hydrocarbons - Production - Patents - Germany 2. 2-Naphthol - Production - Patents - Germany 3. Maleic anhydride - Production - Patents - Germany 4. Oils, Diesel - Production - Patents - Germany 5. Glycols - Condensation products - Patents - Germany 6. Patents - Germany - O.Z. 12365 Sep 25, 1950 7. Patents - Germany - O.Z. 12316 Aug 20, 1940 8. Patents - Germany - O.Z. 12258 Jul 18, 1940 9. Patents - Germany - O.Z. 12181 Jun 1, 1940 10. Patents - Germany - O.Z. 12276 Jul 29, 1940 11. Patents - Germany - O.Z. 12199 Jun 17, 1940 12. Patents - Germany - O.Z. 12242 Jul 10, 1940 13. Patents - Germany - O.Z. 12361 Sep 21, 1940 14. Micro BIOS FD 879/48, Frames 1-144.

Abstract available as PB 102215s. 2p. Mi $1.25, Ph $1.25.

PATENT APPLICATIONS RELATING TO HYDROXY ALKYLATION PRODUCTS, ALIPHATIC DICARBOXYLIC ACIDS, ETC. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 1940-1942. 17f (Text in German) Mi $1.75, Enl Pr $3.75. PB 102200

1. 1,3-Dioxane - Preparation - Patents - Germany 2. Acids, Dicarboxylic - Preparation - Patents - Germany 3. Hydroxy compounds - Preparation - Patents - Germany 4. Hydrogen peroxide - Derivatives - Patents - Germany 5. Patents - Germany - O.Z. 12153, May 18, 1940 6. Patents - Germany - O.Z. 12398, Oct 14, 1940 7. Patents - Germany - O.Z. 12358, Sep 1950 8. Micro BIOS FD 2823/48, Frames 1-13.

Abstract available as PB 102200s. 2p. Mi $1.25, Ph $1.25.

PATENT APPLICATIONS RELATING TO THE OXIDATION OF HYDROCARBONS AND TO CARBOXYLIC ACIDS. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 1940-1944. 31f (Text in German) Mi $2.25, Enl Pr $6.25. PB 102446

1. Hydrocarbons - Oxidation - Patents - Germany 2. Acids, Carboxylic - Preparation - Patents - Germany 3. Patents - Germany - O.Z. 12350 Sep 11, 1940 4. Patents - Germany - O.Z. 12275 Jul 26, 1940 5. Patents - Germany - I 66643 IVd/12o suppl. 6. Patents - Germany - O.Z. 12383 Oct 5, 1940 7. Patents - Germany - O.Z. 12205 Jun 18, 1940 8. Patents - Germany - O.Z. 13768 Nov 5, 1940 9. Patents - Germany - O.Z. 14781 Jun 6, 1944 10. Micro BIOS FD 2379/48, Frames 1-28.

English abstract included. Abstract available as PB 102446s. 2p. Mi $1.25, Ph $1.25.

PATENTS, APPLICATIONS, REPORTS, PHYSICAL DATA, ETC. ON TRI-AND TETRACHLORETHANE, DI-, TRI-, AND PERCHLORETHYLENE, ETC. I.G. Farbenindustrie A. G., Schkopau, Ger. 1938-1943. 114f graphs, tables (Text in German) Mi $4.75, Enl Pr $16.25. PB 103316

1. Ethane, Tetrachloro - Production - Germany 2. Ethane, Trichloro - Production - Germany 3. Ethane, Hexachloro - Production - Germany 4. Ethylene, Dichloro - Production - Germany 5. Ethylene, Tetrachloro - Production - Germany 6. Ethylene, Trichloro - Production - Germany 7. Methane - Chlorination - Germany 8. Patents - Germany I 74706 Mar 31, 1943 9. Patents - Germany O.Z. 14080 Mar 18, 1943 10. Patents - Germany O.Z. 13825 Dec 2, 1942 11. Micro BIOS FD 2664/47, Frames 1-106.

English abstract included. Abstract available as PB 103316s. 3p. Mi $1.25, Ph $1.25. Includes report of 2.2.39 by Dr. Hennig on thermal process for production of perchlorethylene and hexachlorethane, also report of 6.10.39 by Dr. Ostermayer on the manufacture of perchlorethylene (also PB 102166) and a resume dated 23.7.42 of paper by Dr. Hilcken on production of methane chlorination products. See also PB 103320 for report by Dr. Hennig.

Electrical Machinery, Equipment and Supplies

ACCUMULATEUR A L'ARGENT ET AU ZINC, À ELECTRODE NEGATIVE INSOLUBLE ET À ELECTROLYTE INVARIABLE (SILVER-ZINC BATTERY WITH INSOLUBLE NEGATIVE ELECTRODE AND INVARIABLE ELECTROLYTE) FRENCH PATENT, GROUP 12, CLASS 5, NO. 926,470, REQUESTED 11 APR 1946, GRANTED 21 APR 1947 AT PARIS, PUBLISHED 2 OCT 1947. TRANSLATED BY LINTON C. STEVENS, by Henri Georges André. Dec 1950. 20p drawings Mi $1.75, Ph $2.50. PB 102940

1. Batteries - patents - France 2. NAVSHIPS T397 3. STS 100.

ACCUMULATEUR ÉLÉCTRIQUE À ÉLÉCTRODES COLLOIDALES (ELECTRIC BATTERY WITH COLLODIAL ELECTRODES) FRENCH PATENT, GROUP 12, CLASS 5, NO. 824,022, APPLIED FOR 23 SEP 1936, GRANTED 3 NOV 1937 AT PARIS, PUBLISHED 31 JAN 1938. TRANSLATED BY LINTON C. STEVENS, by Henri Georges Andre. Dec 1950. 15p drawings Mi $1.75, Ph $2.50. PB 102939

This invention is concerned with batteries having a soluble negative electrode and more specifically with those in which the positive electrode is surrounded by a cellulose diaphragm and especially with cellophane. In order to secure batteries of this small size type, the inventor has already recommended the construction of a positive electrode, in the form of a coiled band, but experience has shown that this particular construction did not give satisfaction in securing cells of larger size presenting large active surfaces. NAVSHIPS T396. STS 98.

PERFECTIONNEMENTS APPORTES AUX ACCUMULATEURS (IMPROVEMENTS BROUGHT ABOUT ON BATTERIES) FRENCH PATENT, GROUP 12, CLASS 5, NO. 831,282, REQUESTED 27 DEC 1937, GRANTED 30 MAY 1938 AT PARIS, PUBLISHED 29 AUG 1938. TRANSLATED BY LINTON C. STEVENS, by Henri Georges André. Dec 1950. 13p fold drawing Mi $1.75, Ph $2.50. PB 102941

1. Batteries - Patents - France 2. NAVSHIPS T399 3. STS 99.

Fuels and Lubricants

PATENT APPLICATION FOR A PROCESS FOR MANUFACTURING HIGH OCTANE BENZINE. REPORT ON "STABISOL", A PRODUCT FOR THE PREVENTION OF RESIN FORMATION IN FUELS. I. G. Farbenindustrie A. G., Frankfort, Ger. n.d. 8f (Text in German) Mi $1.25, Enl Pr $2.50.
PB 103269

1. Gasoline, High octane - Manufacture - Patents - Germany 2. Patents - Germany J 51351 IVa/23b(2/01) 3. Stabisol (Trade name) 4. Fuels - Resin formation - Germany 5. Micro BIOS FD 2/48, Frames 704-709+2.

Abstract available as PB 103269s. 1p. Mi $1.25, Ph $1.25.

Machinery

PATENT APPLICATION FOR A PRESSURE OPERATED CASTING DEVICE. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1943. 9f drawing (Text in German and English) Mi $1.25, Enl Pr $2.50. PB 103278

1. Machines, Casting - Patents - Germany 2. Patents - Germany I 66100 VIa/31c 3. Micro BIOS FD 1057/48, Frames 1-8.

Abstract available as PB 103278s. 1p. Mi $1.25, Ph $1.25.

POURING HEADS FOR CASTING MOULDS FOR LIGHT METALS. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1940. 16f diagrs (Text in German and English) Mi $1.75, Enl Pr $3.75. PB 103279

1. Molds, Casting - Patents - Germany 2. Patents - Germany - E 55021 VI/31c 3. Patents - Germany - I 66954 VI/31c 4. GP 753241 5. Micro BIOS FD 1062/48, Frames 1-14.

Abstract available as PB 103279s. 1p. Mi $1.25, Ph $1.25.

RE-EXAMINATION OF THE MANUFACTURING METHODS FOR WEAR RESISTANT TOOLS, GERMAN PATENT 626394, by Dr. Dawihl. Studiengesellschaft Hartmetall, Berlin. Dec 1940. 4f (Text in German) Mi $1.25, Enl Pr $1.50. PB 102469

1. GP 626394 2. Tungsten alloys - Cutting tests - Germany 3. Tools, Cutting - Tests - Germany 4. BIOS FR 925 LD 5. Micro BIOS HEC 11260 6. Micro BIOS FD 3857/47, Frames 1-3.

English abstract included. Abstract available as PB 102469s. 1p. Mi $1.25, Ph $1.25. Listed in BIOS FR 925 appx. I, p. 25 as HEC 11260.

Metals and Metal Products

CLAD METALS. PATENT APPLICATIONS. I. G. Farbenindustrie A. G., Frankfort, Ger. Mar 1941-Jul 1943. 25f (Text in German) Mi $2.00, Enl Pr $5.00. PB 103094

1. Metals - Coatings, Protective - Patents - Germany 2. Patents - Germany - Wo 2459a Mar 13, 1941 3. Patents - Germany - Wo 2642 May 27, 1941 4. Patents - Germany - Wo 3146 July 16, 1943 5. Patents - Germany - I 65768 VI/40d 6. Patents - Germany - I 71928 VI/40d 7. Micro BIOS FD 1056/48, Frames 1-25.

Abstract available as PB 103094s. 1p. Mi $1.25, Ph $1.25.

EXPERIMENTS RELATED TO GERMAN PATENT APPLICATION: "PROCESS FOR MANUFACTURE OF HARD ALLOYS CONTAINING DIAMOND," by Dr. Dawihl. Studiengesellschaft Hartmetall, Berlin. Nov 1940. 3f (Text in German) Mi $1.25, Enl Pr $1.50.
PB 102465

1. Alloys, Hard - Diamond containing - Germany 2. Patents - Germany W 97,334/40b, 17 3. Tungsten-carbon-nickel alloys - Germany 4. BIOS FR 925 LD 5. Micro BIOS HEC 11248 6. Micro BIOS FD 3852/47, Frame 1.

English abstract included. Abstract available as PB 102465s. 2p. Mi $1.25, Ph $1.25. Listed in BIOS FR 925 appx. I, p. 23.

METHODS OF IMPROVING THE STRENGTH PROPERTIES, AND FOR OBTAINING A FINER STRUCTURE OF MAGNESIUM AND MAGNESIUM ALLOYS. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1940-1944. 66f tables (Text in German and English) Mi $3.00, Enl Pr $10.00. PB 103282

1. Magnesium - Production - Patents - Germany 2. Magnesium alloys - Strength - Germany 3. Magnesium alloys - Structure - Germany 4. Patents - Germany - I 67489 VI/40a Jul 26, 1940 5. Patents - Germany - I 69372 VI/40a Apr 16, 1940 6. Patents - Germany - I 73948 VIa/40b Dec 28, 1942 7. Patents - Germany - I 73949 Dec 28, 1942 8. Patents - Germany I 74168 VIa/40a Jan 28, 1943 9. Patents - Germany I 74271 VIa/40a Feb 9, 1943 10. Patents - Germany I 77340 VIa/40a May 3, 1944 11. Patents - Germany I 77819 VIa/40a Jul 21, 1944 12. Micro BIOS FD 1069/48, Frames 1-66.

Abstract available as PB 103282s. 2p. Mi $1.25, Ph $1.25.

METHODS OF PURIFYING MAGNESIUM AND ALUMINUM. PURIFYING AGENTS FOR LIGHT METALS. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1941-1945. 17f drawing, graph, table (Text in German and English) Mi $1.75, Enl Pr $3.75.
PB 103283

1. Aluminum - Purification - Patents - Germany 2. Light metals - Purification - Patents - Germany 3. Magnesium - Purification - Patents - Germany 4. Patents - Germany I 69313 VIa/40a Apr 4, 1941 5. Patents - Germany I 78062 VIa/40a Aug 18, 1944 6. Patents - Germany Wo 3426 Jan 17, 1945 7. Micro BIOS FD 1077/48, Frames 1-17.

Abstract available as PB 103283s. 2p. Mi $1.25, Ph $1.25.

NACHPRÜFUNG DES VERFAHRENS ZUR HERSTELLUNG VON ZIEHSTEINEN AUS WOLFRAMKARBID UND MOLYBDÄNKARBID. (CHECKING OF A METHOD FOR PRODUCING DRAWING DIES MADE FROM TUNGSTEN CARBIDE AND MOLYBDENUM CARBIDE). Studiengesellschaft Hartmetall, Berlin. Oct 1940. 3f (Text in German) Mi $1.25, Enl Pr $1.50.
PB 102461

1. Grinding wheels - Manufacture - Germany 2. Extrusions - Forming - Germany 3. Tungsten - Molybdenum alloys - Germany 4. Patents - Germany H 153,849 5. BIOS FR 925 LD 6. Micro BIOS HEC 11242 7. Micro BIOS FD 3847/47, Frames 1-2.

English abstract included. Abstract available as PB 102461s. 1p. Mi $1.25, Ph $1.25. Listed in BIOS FR 924 appx. I, p. 23.

NOTES ON D.W.M. PATENT FOR PRODUCTION OF WELDLESS STEEL TUBES, TRANSLATED by F. Marks. Deutsche Waffen- und Munitionsfabriken A. G., Lübeck, Ger. Sep 1945. 8f drawings Mi $1.25, Enl Pr $2.50. PB 103250

1. Tubes, Steel - Weldless - Patents - Germany. M-216-46. BIOS/Gp 2/133.

OXIDATION-PREVENTING CASTING METHODS FOR MAGNESIUM AND MAGNESIUM ALLOYS. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1941-1942. 5f (Text in German) Mi $1.25, Enl Pr $1.50. PB 103291

1. Magnesium - Casting - Patents - Germany 2. Magnesium alloys - Casting - Patents - Germany 3. Patents - Germany C 56605 VI/31c June 28, 1941 4. Patents - Germany Wo 3088 Feb 21, 1942 5. Micro BIOS FD 1099/48, Frames 1-5.

Abstract available as PB 103291s. 1p. Mi $1.25, Ph $1.25.

PATENT APPLICATION FOR THE ELECTROTHERMAL PRODUCTION OF METALS VOLATILE AT THE TEMPERATURE OF REDUCTION BY REDUCING THEIR OXIDES WITH CARBON. I. G. Farbenindustrie A. G., Bitterfeld, Ger. Nov 1941. 19f drawing (Text in German and English) Mi $1.75, Enl Pr $3.75. PB 103096

1. Electrothermics - Germany 2. Metals - Production - Patents - Germany 3. Patents - Germany St 61233 VIa/41a Nov 12, 1941 4. Patents - Germany Wo 2744 5. Micro BIOS FD 1084/48, Frames 1-19.

Abstract available as PB 103096s. 2p. Mi $1.25, Ph $1.25.

PATENT APPLICATION ON THE WORKING-UP OF COMPOUND LIGHT METAL FOILS. I. G. Farbenindustrie A. G., Bitterfeld, Ger. Feb 1942. 12f (Text in German and English) Mi $1.75, Enl Pr $3.75. PB 103097

1. Foils, Metal - Patents - Germany 2. Metals - Recovery - Patents - Germany 3. Patents - Germany I 71653 VI/40a Feb 27, 1942 4. Patents - Germany Wo 2858 5. Micro BIOS FD 1090/48, Frames 1-7+5.

Abstract available as PB 103097s. 1p. Mi $1.25, Ph $1.25.

PATENT APPLICATION RELATING TO A PROCESS FOR DYEING MAGNESIUM AND MAGNESIUM ALLOYS. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1942. 11f (Text in German and English) Mi $1.75, Enl Pr $3.75. PB 102957

1. Magnesium - Dyeing - Patents - Germany 2. Magnesium alloys - Dyeing - Patents - Germany 3. Patents - Germany Wo 3023 4. Micro BIOS FD 1095/48, Frames 1-5+5.

English abstract included. Abstract available as PB 102957s. 1p. Mi $1.25, Ph $1.25.

PATENT APPLICATIONS FOR A METHOD OF PRODUCING MAGNESIUM HYDROXIDE AND A PROCESS FOR PRODUCING A QUICKLY SETTLING PRECIPITATE OF MAGNESIUM HYDROXIDE. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1940-1941. 15f (Text in German and English) Mi $1.75, Enl Pr $3.75. PB 103284

1. Magnesium hydroxide - Production - Patents - Germany 2. Patents - Germany 7484 Mar 30, 1940 3. Patents - Germany Wo 2740 Sep 30, 1941 4. Micro BIOS FD 1083/48, Frames 1-15.

Abstract available as PB 103284s. 2p. Mi $1.25, Ph $1.25.

PATENT APPLICATIONS RELATING TO HEAT TREATMENT OF LIGHT METAL ALLOYS. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1942-1944. 50f drawings, graphs, tables (Text in German and English) Mi $2.50, Enl Pr $7.50. PB 103290

1. Light metals - Heat treatment - Patents - Germany 2. Patents - Germany I 73669 VIa/40d Nov 26, 1942 3. Patents - Germany I 77769 VIa/40d Feb 14, 1944 4. Patents - Germany I 75727 VIa/40d Aug 20, 1943 5. Patents - Germany I 77837 VIa/40d Feb 18, 1944 6. Patents - Germany I 75725 VIa/40d 7. Patents - Germany I 76613 VIa/40d Jan 15, 1944 8. Patents - Germany I 77339 VIa/40d May 3, 1944 9. Micro BIOS FD 1093/48, Frames 1-50.

Abstract available as PB 103290s. 2p. Mi $1.25, Ph $1.25.

PATENT APPLICATIONS RELATING TO PROCESSES FOR IMPROVING THE STRENGTH OF MAGNESIUM ALLOYS. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1944. 9f (Text in German) Mi $1.25, Enl Pr $2.50. PB 103292

1. Magnesium alloys - Strength - Patents - Germany 2. Patents - Germany M 156670 VIa/40b Mar 22, 1944 3. Patents - Germany I 78115 VIa/40b Aug 31, 1944 4. Micro BIOS FD 1117/48, Frames 1-9.

For English Abstract available as PB 103292s. 2p. Mi $1.25, Ph $1.25.

PATENT APPLICATIONS RELATING TO SURFACE TREATMENT OF MAGNESIUM AND ALUMINUM ALLOYS. I. G. Farbenindustrie A. G., Frankfort, Ger. 1940-1941. 49f tables (Text in German and English) Mi $2.50, Enl Pr $7.50. PB 103095

1. Aluminum alloys - Coatings, Protective - Patents - Germany 2. Magnesium alloys - Coatings, Protective - Patents - Germany 3. Patents - Germany - J 66830 VI/48d Apr 9, 1940 4. Patents - Germany - J 66830 VI/48d appx. Mar 24, 1941 5. Patents - Germany - J 67576 VI/48d Aug 2, 1940 6. Patents - Germany - J 70288 VI/48 Aug 21, 1941 7. Patents - Germany - I 68564 VI/48d(4/o2) Dec 31, 1940 8. Patents - Germany - I 68250 VI/48d(4/o2) Nov 19, 1940 9. Patents - Germany - I 73947 VI/48d Dec 24, 1942 10. Patents - Germany - I 67968 Nov 7, 1940 11. Micro BIOS FD 1064/48, Frames 1-46.

Abstract available as PB 103095s. 2p. Mi $1.25, Ph $1.25.

PATENT APPLICATIONS RELATING TO THE PRODUCTION OF PROTECTIVE LAYERS ON LIGHT METAL ARTICLES BY ANODIC TREATMENT. I.G. Farbenindustrie A. G., Frankfort, Ger. 1940-1943. 20f drawings (Text in German and English) Mi $1.75, Enl Pr $3.75. PB 103311

1. Light metals - Coatings - Patents - Germany 2. Patents - Germany Wo 2467 Jan 9, 1940 3. Patents - Germany Wo 2468 Jan 9, 1940 4. Patents - Germany Wo 2469 Jan 9, 1940 5. Micro BIOS FD 1058/48, Frames 1-19.

Abstract available as PB 103311s. 1p. Mi $1.25, Ph $1.25.

PATENTS RELATING TO WELDING OF MAGNESIUM ALLOYS CONTAINING ALUMINUM AND ZINC. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1940-1942. 29f (Text in German) Mi $2.00, Enl Pr $5.00. PB 103312

1. Magnesium alloys - Welding - Patents - Germany 2. Magnesium-aluminum-zinc alloys - Welding - Patents - Germany 3. Patents - Germany - Wo 2847A Sep 22, 1940 4. Patents - Germany - Wo 2847A I/II Nov 25, 1942 5. Patents - Germany - Wo 2847B Oct 1, 1940 6. Patents - Germany - Wo 2847C Nov 22, 1941 7. Patents - Germany - Wo 2847D Nov 22, 1942 8. Patents - Germany - Wo 2528 Aug 6, 1940 9. Micro BIOS FD 1070/48, Frames 1-29.

For English Abstract available as PB 103312s. 2p. Mi $1.25, Ph $1.25.

PATENT SPECIFICATION COVERING A PROCESS FOR THE PRODUCTION OF ROLLER PLATES FROM LIGHT METAL ALLOYS BY EXTRUSION CASTING. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1944. 3f (Text in German) Mi $1.25, Enl Pr $1.50. PB 103299

1. Rollers - Casting - Patents - Germany 2. Light metal castings - Patents - Germany 3. Patents - Germany I 78509 VIa/31c Nov 14, 1944 4. Micro BIOS FD 1118/48, Frames 1-3.

Abstract available as PB 103299s. 1p. Mi $1.25, Ph $1.25.

ÜBER DIE HERSTELLUNG VON SCHMELZLEGIERUNGEN ÄHNLICH DEM ZWISCHENHARTMETALL PATENT (SCHWEIZER PATENT 207558) (MANUFACTURE OF MOLTEN ALLOYS SIMILAR TO THE INTERMEDIATE HARD METALS (SWISS PATENT 207558), by Dr. Dawihl and Schmidt. Studiengesellschaft Hartmetall, Berlin. May 1941. 3f (Text in German) Mi $1.25, Enl Pr $1.50. PB 102483

1. Alloys, Hard - Production - Germany 2. Patents - Switzerland - 207558 3. BIOS FR 925 LD 4. Micro BIOS HEC 11306 5. Micro BIOS FD 3885/47, Frames 1-3.

Listed in BIOS FR 925 appx. I, p. 29 as HEC 11,306.

VERFAHREN ZUR HERSTELLUNG VON MAGNESIUMBIKARBONATLÖSUNG (PROCESS FOR THE PRODUCTION OF MAGNESIUM BICARBONATE SOLUTIONS). I.G. Farbenindustrie A. G., Bitterfeld, Ger. Jun 1940. 7f (Text in German) Mi $1.25, Enl Pr $2.50. PB 103281

1. Magnesium carbonates - Production - Patents - Germany 2. Patents - Germany I 67285 IVb/12m 3. Patents - Germany Wo 2512 4. Micro BIOS FD 1067/48, Frames 1-7.

Abstract available as PB 103281s. 1p. Mi $1.25, Ph $1.25.

VERSUCHE ZUM TRENZEN-PATENT ÜBER DAS NIEDERSCHLAGEN VON WOLFRAMKARBID AUS WOLFRAM HEXAKARBONYL (EXPERIMENTS IN CONNECTION WITH THE TRENZEN PATENT FOR THE PRECIPITATION OF TUNGSTEN FROM TUNGSTEN HEXACARBONYL), by Dr. Dawihl. Studiengesellschaft Hartmetall, Berlin. Jun 1937-Sep 1947. 10f table (Text in German) Mi $1.25, Enl Pr $2.50. PB 102066

1. Tungsten carbide - Production - Germany 2. FIAT FR 925 LD 3. Micro BIOS HEC 11095 4. Micro BIOS HEC 11111 5. Micro BIOS FD 3773/47, Frames 1-8.

Abstract available as PB 102066s. 2p. Mi $1.25, Ph $1.25. Listed in BIOS FR 925 appx. I, p. 5 and 11.

Physics

DISPOSITIF POUR TRANSFORMER DE L'ENERGIE NUCLEAIRE EN UNE AUTRE FORME D'ENERGIE (DEVICE FOR TRANSFORMING NUCLEAR ENERGY INTO ANOTHER FORM OF ENERGY) SWISS PATENT NO. 233,011. FRANCE. CENTRE NATIONAL DE RECHERCHE SCIENTIFIQUE. TRANSLATED by F. Risso. Oct 1944. 27p drawings Mi $2.00, Ph $3.75. PB 102936

1. Nuclear physics - Switzerland 2. Reactors, Neutron - Patents - Switzerland 3. Patents - Switzerland 4. NAVSHIPS T392.

U. S. Bureau of Ships. Translation no. 392.

Textiles and Textile Products

VERFAHREN ZUR VEREDELUNG VON TEXTILFASERN (PROCESS FOR THE IMPROVEMENT OF TEXTILE FIBERS). Steinkohlenbergwerk Rheinpreussen, Homburg, Ger. Sep 1924. 3f (Text in German) Mi $1.25, Enl Pr $1.50. PB 101349

1. Textiles - Coatings - Patents - Germany 2. Patents - Germany St 62248 IVd/8k Sep 9, 1942 3. Micro BIOS FD 1292/49, Frames 1-3.

Abstract available as PB 101349s. 1p. Mi $1.25, Ph $1.25.

Miscellaneous

SCHIFFBAU. KLASSE 62, 65, 72. (ABSTRACTS OF GERMAN PATENT APPLICATIONS. SHIPBUILDING INCLUDING AERONAUTICS AND AMMUNITION. CLASSES 62, 65, 72. (VOL. 22 OF THE SERIES). Auszüge Deutscher patent-anmeldungen. n.d. 1004p (Text in German) Mimeo: $5.00. PB 85028

1. Shipbuilding - Patents - Germany 2. Aeronautics - Patents - Germany 3. Ammunition - Patents - Germany 4. Patents - Bibliography.